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IN THE
Supreme Court of the United States
OCTOBER TERM, 1978

TIMKEN COMPANY, *Petitioner*

v.

THE ENVIRONMENTAL PROTECTION AGENCY, and
DOUGLAS COSTLE, Administrator of the
ENVIRONMENTAL PROTECTION AGENCY, *Respondents*

**PETITION FOR A WRIT OF CERTIORARI TO
THE UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT**

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Petitioner, the Timken Company, prays that a writ of certiorari issue to review a judgment of the United States Court of Appeals for the Sixth Circuit upholding the validity of a sulfur dioxide emission control plan for the state of Ohio promulgated by the Administrator of the Environmental Protection Agency (EPA).

OPINION BELOW

The opinion of the United States Court of Appeals for the Sixth Circuit (App. A, pp. 1a-49a) is reported at 572 F.2d 1150. The action of the Administrator which is at issue here was published at 41 Fed. Reg. 36324 (August 27, 1976).

JURISDICTION

The judgment below was entered on February 13, 1978 (App. B, *infra*, p. 50a). On April 18, 1978 the Court of Appeals denied a timely petition for rehearing (App. C, *infra*, p. 51a). The jurisdiction of this Court is invoked under 28 U.S.C. § 1254(1).

QUESTIONS PRESENTED

1. Whether the adoption of an untested and unverified computer model as a basis for a regulation is valid when there was no adequate opportunity to present the deficiencies of the model to the agency.

2. Whether in light of *Vermont Yankee Nuclear Power Co. v. National Resources Defense Council*, — U.S. —, decided May 1, 1978, procedural safeguards beyond notice and comment are statutorily or constitutionally required where a proposed regulation in effect adjudicates and determines particular individual rights using an untested computer construct as the decision-maker.

3. Whether an additional period for notice and opportunity for comment was required by Section 4 of the Administrative Procedure Act when the proposed regulation had been essentially changed in methodology and impact after the initial notice and opportunity for comment.

4. Whether on the basis of *Citizens to Preserve Overton Park Inc., v. Volpe*, 401 U.S. 402, the court below adequately assessed the factual record in upholding adoption of a computer model as an emission control regulation—when the model was unverified against monitor experience, and was based on unlikely and unverified empirical assumptions—while

failing to address any of the technical objections to the model's deficiencies.

5. Whether the court below failed to address adequately the petitioners' claims of technological and economic infeasibility in light of the unprecedented nature and impact of the regulation, and the claims that such stringent limitations were not warranted by National Air Quality Standards.

STATUTES INVOLVED

The constitutional and statutory provisions primarily involved are reproduced in Appendix D, *infra* pp. 52a-72a.

STATEMENT

This case arises out of a plan for control of emissions of sulfur dioxide in the state of Ohio. The plan was promulgated by the Administrator of the Environmental Protection Administration (EPA) on August 27, 1976, 41 Fed. Reg. 36324, and was held valid by the Court of Appeals for the Sixth Circuit, against the contentions of some 32 petitioners below, who attacked both the procedural genesis and the substance of the 1976 plan.

History

On January 30, 1972, the Governor of the state of Ohio first filed a state implementation plan under section 110(a) of the Clean Air Act designed to control, inter alia, sulfur dioxide emissions. Although the EPA approved the plan, the court of appeals remanded the plan to the EPA in *Buckeye Power, Inc. v. Environmental Protection Agency*, 481 F.2d 162 (6th Cir. 1973), because the Administrator had failed

to provide the publication and opportunity for comment required by section 4 of the Administrative Procedure Act (APA), 5 U.S.C. § 553, *infra*, pp. 52a-54a.

The plan had been initially promulgated on the assumption that conversion from coal to cleaner fuels, principally oil and natural gas, would provide much of the contemplated air quality improvement. When the oil crisis made this course impracticable by limiting the availability and raising the price of these fuels, the difficulties of devising a workable plan intensified. After a period in which the emission control limitations were withdrawn in part, revised, and overturned in part by the Ohio Environmental Board of Review, the Ohio regulations were withdrawn by the Governor on July 16, 1975.

Pursuant to Section 110(c) of the Clean Air Act, 42 U.S.C. § 7410, formerly 42 U.S.C. 1857(c)-5, the EPA Administrator on November 10, 1975 proposed a plan for control of SO₂ emissions in Ohio. 40 Fed. Reg. 52410. Public hearings were held and comments solicited on this plan. The methodology of the plan varied from county to county, but generally the limitations were based on the type of facility involved, and not derived on the basis of emission from specific facilities. In the twelve urban counties emission limits were based on a sliding scale according to the size of the facility—the larger the source, the more stringent the limitation. For the remaining forty-four controlled counties¹ the plan established flat rate county limitations determined on the basis of the amount of

¹ Thirty-two rural counties were uncontrolled because of minimal or non-existent emission problems.

reduction needed for the worst county facility. The regulations generally were applied to specific sources through simple allocation of the emission reduction calculated to be necessary for the county as a whole. Computer modeling to predict diffusion of emissions was used only in a limited way.

Reacting to intense criticism of the stringency of the proposed limitations and of the failure of the regulations to take facility-specific differences into account, EPA in large part abandoned the 1975 plan for urban areas, and on August 27, 1976 promulgated a replacement plan based on facility-specific computer modeling for those urban areas.²

² Under the 1976 plan, thirty-three counties are uncontrolled and of the fifty-five controlled counties, twenty-nine counties have a general fuel combustion regulation, twenty counties have a general industrial process regulation, six have a general sliding scale. Only twelve counties have limitations for specifically named facilities. Timken Co. has facilities in Stark County, Ohio, one of the urban Ohio counties regulated by EPA's RAM model.

The appeal in the Sixth Circuit and this Petition are principally concerned with the source-specific application of the plan using the RAM model. App. A, p. 2a, 572 F.2d at 1152, n. 1. Issues raised with regard to the portions of the Ohio plan covered by the MAX or CRSTR single-source rural diffusion model have been decided separately. See clarifying order entered in Docket Nos. 76-2090, 77-1367 on June 29, 1978 under the caption Cincinnati Gas and Electric Co., et al. v. Environmental Protection Agency and Douglas M. Costle, Administrator. The extent to which uncontested portions of the plan were unchanged or only slightly changed is irrelevant to the issue of the introduction of RAM into the plan. Cf. American Frozen Food Inst. v. Train, 539 F.2d 107, 135 (D.C. Cir. 1976) (inadequate notice and opportunity to comment with respect to one of the pollutants covered requires remand with regard to that pollutant).

The model used is the Realtime Air Quality Simulation model, referred to throughout the record as the RAM model. The controversy here centers upon the adoption and use of this model.

RAM Model

The RAM model is an attempt to base emission limitations on a computer dispersion model. Basically the model is a mathematical construct which relates three major sorts of data: meteorological data, source emission data, and ambient air quality data.³ Ambient air quality is predicted on the basis of the relationship between source and meteorological data. Based on this prediction, specific source emission limitations are calculated. The model then re-predicts ambient air quality based on these limitations in order to establish (again according to the model) that national ambient air quality standards will be achieved. EPA Supplemental Technical Support Document pp. 151-153 (May, 1977).

In applying RAM, EPA incorporated three worst-case assumptions:

³ The Brief on behalf of the Environmental Protection Agency before the Sixth Circuit (hereafter EPA Brief) characterizes the data required in this way:

"For every source analyzed, dispersion modeling requires the following specific data: (1) Meteorology data, average wind speed, stability wind rose (wind velocities, directions, and percentage of time for each direction), mixing height, temperature; (2) Source data, emission rate (only one used in rollback), stack height, stack diameter, average stack gas volume flow, corresponding temperature, exit velocity, maximum stack gas volume flow with corresponding temperature and exit velocity, and specific source location using a standardized system of coordinates. Ambient air data requires maximum concentrations, spatial distributions of concentrations." EPA Brief, p. 17, n. 26.

1. Full-capacity operation of all sources of a given company or facility at all times;
2. Full capacity operation of all other sources in the same county; and
3. Worst meteorological conditions, leading to the highest ground level ambient concentrations of sulfur dioxide.⁴

The 1976 plan had several features which set it apart from all previous EPA emission plans, including the EPA plan which it replaced. First, the new plan relied extensively on computer prediction of air quality violations to the exclusion of monitor data; second, the new plan relied on facility-specific data and generated facility-specific limitations; third, it took into account the relationships among multiple sources; fourth, it incorporated separate dispersion factors for urban and rural terrain.

Petitioners below complained that the new model was largely unexamined and untried and that additional time, study, and commentary were needed.⁵

⁴ See Appendix to the Brief on behalf of Timken Co. to the Sixth Circuit Court of Appeals (Timken Appendix), p. A-9.

⁵ The RAM model was outlined in an article published in June, 1976. Turner and Novak, "An Efficient Gaussian-Plume Multiple Source Air Quality Algorithm," 26 Journal of Air Pollution Control Association 570 (June 1976). Turner and Novak state that RAM can be used as a tool to locate air quality monitors and "assist" in emission reduction tactics. Petitioners below endorsed these types of ancillary use of RAM modeling techniques. Joint Brief of Petitioners Relative to the Use of the RAM Model, p. 17 (hereafter Joint Brief).

In a memorandum dated August 11, 1976 (sixteen days before publication of the original regulation), Turner and Novak stated:

"• • • Although RAM has not been fully checked out, computations appear correct, and therefore we are making these

On November 12, 1976, prior to the decision below on the merits, the Sixth Circuit *sua sponte* ordered a stay and reopening of the administrative record "subject to the following conditions" (App. A, p. 8a; 572 F.2d at 1155):

"No petitioners shall be permitted to submit any new emission, process, or air quality data. Comments relating to clerical or computational errors shall be permitted."

Many of the petitioners submitted such comments and corrections. The EPA declared that it would entertain only those comments which related to EPA's clerical and computational errors in feeding its raw data into the model.⁶ No significant changes in the model or its application were made.

The Sixth Circuit Decision

Thirty-two petitioners, among them the Timken Company, the petitioner here, attacked the final regulations in the Court of Appeals for the Sixth Circuit on a number of procedural and substantive grounds. The main objections were that (1) the procedures for

four versions provisionally available to you. However, until further testing and debugging is completed, consider these versions provisional and for EPA use only. Your provisional use of these current versions of RAM may assist us in the final debugging. • • •"
(App. to Joint Brief at p. 476.)

In April, 1977, the EPA solicited technical proposals which were to propose ways to optimize the computational efficiency of the model, RFP No. DU-77-B117, and to validate the RAM model, RFP No. DU-77-B124 (both dated April 22, 1977).

⁶ Letter Dated December 6, 1976 from G. William Frick, General Counsel to EPA, to all petitioners below. Supplement to Certified Index to the Record Below, Item E. 2.

adoption of the RAM model were deficient in that the procedures did not allow full examination of the RAM model itself nor full adjudication of the application of the RAM model to the petitioners' particular situations; (2) adoption of the plan was arbitrary and capricious because of erroneous assumptions made in constructing the model and because no effort was made to validate the predictions or results of the plan against actual air quality data; (3) adoption of the plan was contrary to the Clean Air Act, as well as arbitrary and capricious, because the Administration had totally failed to consider the economic and technological infeasibility of the plan or any alternatives to achieve the National Ambient Air Quality Standards for sulfur dioxide.

The court of appeals upheld the action of the Administrator. In reaching this result, the court focused on the purpose of the Act to "insure" attainment and maintenance of national air quality standards. It said that insofar as the RAM model overpredicted concentrations of SO₂, it was "conservative" rather than arbitrary, and that objections based on economic or technological infeasibility must fall before a perceived congressional mandate of achieving the national standards of air quality despite the attendant economic burdens. App. A, pp. 21a-30a, *infra*; 572 F.2d 1161-1165. Arguments based on the EPA's failure to provide any opportunity for petitioners to confront the proponents of the RAM model, or to provide even notice and opportunity for comment with regard to the RAM model, were dismissed on the ground that the statute did not specifically require a hearing and decision "on the record," and because the remand period (during which the petitioners were allowed to comment on clerical and computational errors only)

cured any problems of notice and opportunity to comment with regard to the RAM model. App. A, pp. 12a-18a; 572 F.2d at 1157-1160. On this basis judgment was entered for the EPA and its Administrator.

REASONS FOR GRANTING THE WRIT

The decision below, in upholding use of the RAM computer model, raises critical questions about the appropriate use of predictive computer technology in administrative decision-making. As the mechanism for predicting air quality and deriving specific emission limitations, the RAM model both supplies the general emission control rule and performs the adjudicatory function of applying the rule to particular facilities.

Adoption of such a model cannot and should not be done on faith alone, and yet when the record is examined, it reveals:

- The RAM model had never been used before as the basis for a state emission control plan;
- Little or nothing was done to validate the results or the reliability of the model;
- There was significant evidence of systematic overprediction;
- In Stark County, where Timken's facilities are located, stringent and costly emission limitations were imposed despite the fact that Stark County has never had a measured violation of ambient air quality standards.
- No hearing or confrontation of witnesses was provided despite the adjudicative nature of the decision-making, the dramatic impact on individual petitioners as well as the region, and the unprecedented nature of the plan;

- Nor was there any real opportunity for comment provided with respect to the RAM model, in violation of section 4 of the APA (5 U.S.C. § 553).

The mystique of the computer and the quantitative nature of the input into the mathematical decision-maker cannot be allowed to obscure 1) the necessity for testing the assumptions and design of the model, 2) the clearly adjudicative nature of the facts on which particular applications are to be based,⁷ and 3) the direct and particular impact of the computer's decision on specific sources and persons.⁸ Adequate demonstration of the computer model's reliability and adequate protection of participants' rights are necessary to prevent administrative decision-making from taking place within a closed mathematical system. The Sixth Circuit failed to recognize these concerns. A decision so fundamental and far reaching should be reviewed by this Court.

1. **The Decision Below Allowed The RAM Model To Be Promulgated As A Rule Without Adequate Notice And Comment, Contrary To Section 4 Of The Administrative Procedure Act And In Conflict With The Approach Of At Least Three Other Circuits.**

The RAM model is the central issue of this case. Although notice and comment procedures were carried out with regard to the 1975 version of the Administrator's emission plan, as required by Section 4

⁷ See *United States v. Florida Coast Rwy. Co.*, 410 U.S. 224, 245 (1973); see also 1 K. Davis, *Administrative Law Treatise*, § 7.02 at 413 (1958).

⁸ Compare *Seacoast Anti-Pollution League v. Costle*, 572 F.2d 872 (1st Cir. 1978).

of the Administrative Procedure Act (APA), the 1975 version gave no indication that the RAM model would later be used.⁹ Indeed, the RAM model was not known to petitioners below at that time.

The EPA attempted to justify its failure to repropose the emission plan containing the RAM model by arguing that it is the purpose of notice and comment procedures to stimulate rule changes, and that modification in response to comments should not itself require another round of comments, citing *International Harvester, Inc. v. Ruckelshaus*, 478 F.2d 615, 652, n.51 (D.C. Cir. 1973).¹⁰ The court held that the limited remand previously ordered, for correction of clerical and computational errors, solved any procedural problems. App. A, p. 18a; 572 F.2d at 1160.

This reasoning allows the RAM model to go into effect without any real opportunity for specifically affected parties to comment upon the model's particularized impact. See *Portland Cement Association v. Ruckelshaus*, 486 F.2d 375, 393 (D.C. Cir. 1973), *cert. denied*, 417 U.S. 921 (1974). Public as well as private interests are slighted if the assumptions and design of the model, as well as its predictive results, are not tested in the public comment procedure.

⁹ Cf. *Anaconda Co. v. Ruckelshaus*, 482 F.2d 1301, 1307 (10th Cir. 1973) (Lewis, J. concurring), disapproving EPA's use of an arbitrary "bait" figure for discussion purposes in its notice of rulemaking.

¹⁰ The *International Harvester* court said that a contrary rule would allow an agency to "learn" only at its "peril," 478 F.2d at 632, n.51, but it held only that "[g]iven the circumstances" presented there, denial of the opportunity to comment was not denial of due process though "such opportunity would certainly have been salutary." 478 F.2d at 632.

Even under the narrowest formulation of review under the Clean Air Act, the reviewing court must insist that EPA construct a procedure which insures the reliability of technical decisions. *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d 1, 66-67 (D.C. Cir. 1975) (Bazelon, J., concurring), *cert. denied*, 426 U.S. 941 (1976). On the vital issue of the RAM model, the EPA's procedure lacked "some mechanism for interested parties to introduce adverse evidence and criticize evidence introduced by others." *Mobil Oil Corp. v. Federal Power Commission*, 483 F.2d 1238, 1258 (D.C. Cir. 1973).¹¹

The petitioners are not insisting "that a rule remain frozen in its vestigial form." Compare *South Terminal Corp. v. Environmental Protection Agency*, 504 F.2d 646, 659 (1st Cir. 1974). Their position is simply that publication and comment on one plan cannot be taken as adequate for a totally different plan.¹²

¹¹ The radical departure from the plan originally proposed in 1975 signalled by the adoption of the RAM model clearly separates this case from cases where small or evolutionary changes do not require reopening of the comment period. Compare *Ethyl Corp.*, *supra* at 48-49. ("The Agency theories underlying the proposed regulations were identical . . ." and a fourth publication for comment was not required where the changes were evolutionary.) See *American Frozen Food Inst. v. Train*, 539 F.2d 107, 135 (D.C. Cir. 1976) (failure to mention in the notice of rulemaking fecal colli as an item to be controlled rendered the regulation invalid as to that item and required remand to the Administrator).

¹² Without publication and opportunity for comment with regard to the RAM model, the procedure lacks any assurances of reliability and fairness, because the parties were not "'fairly advised' of exactly what the [agency] proposed to do sufficiently in advance of the entry of the final order to give them adequate time

Use of the RAM model is not merely a drastic change in the context of this proceeding—it is one of the most ambitious and comprehensive uses to date of predictive computer modeling techniques for setting emission limitations. It is a revolutionary, not an evolutionary change.

As late as August, 1976, the original authors of the model were urging that it needed substantial “debugging” before it could be put to concrete use. See note 5, *supra*. Nor has the EPA ever satisfactorily explained its offhand dismissal of the only two studies which attempted to relate the model to actual emission levels. The EPA explanation is that one of the studies related to an earlier version of the model (there is apparently no comparable study for this version)¹³ and that the poor performance of the RAM

to formulate and to present objections to the [agency’s] proposal.” *United States v. Florida East Coast Rwy. Co.*, 410 U.S. 224, 243 (1973).

“A plan or revision cannot have undergone a public hearing if it was so incomplete when the hearing was held as to lack the substance of the final approved plan.” *Mision Industrial, Inc. v. EPA*, 547 F.2d 123, 126 n.2 (1st Cir. 1976) (*dictum*).

With regard to the drastic changes in the final plan, the Director of the Ohio Environmental Protection Agency stated that his agency “had no more notice of the changes than anybody else” and that “*there were enough changes in [the plan] that they should have gone back to hearings.*” 7 *Environmental Reporter*, No. 18 at 686 (1976) (emphasis added).

¹³ EPA, Supplemental Technical Support Document, p. 17 (May 1977). This study was “A Determination of the Predictive Capability of the EPA Real-Time Air-Quality Simulation Model,” by Hamill and McGill. It is unclear whether the EPA ever considered the results of this study in the course of its decision to promulgate the RAM model. The study was conducted in St. Louis where RAM was used to predict SO₂ concentrations at 40 air quality monitor sites. By comparison of predicted values and measured values, Hamill concluded the following:

model in the other study was a result of data deficiencies which have, according to EPA’s assertion, been remedied.”

The approach of the court of appeals below, which held that opportunity to comment on EPA’s handling of its raw data constitutes sufficient opportunity to be heard on all aspects of the RAM plan, cannot be reconciled with proper administrative procedure or with the holdings of at least three other courts of appeals which have faced similar issues.¹⁵ Guidance from this Court is necessary to resolve the conflict in approach and insure proper administrative procedures.

“The results of this analysis show that the model error is fairly large and that the model tends to overestimate pollution concentrations.

• • •

“• • • This indicates that the model definitely tends to overestimate pollution levels.”

Moreover, analysis of the differences between the earlier and later versions of RAM seems to indicate that the overprediction effect has been intensified rather than solved (App. to Joint Brief at p. 521):

“• • • this difference between the Original [Hamill] RAM Model and the Urban RAM Model indicates that the Urban RAM Model is expected to produce higher predicted concentrations than the Original [Hamill] RAM Model.”

¹⁴ This study, by Environplan, Inc., was commissioned by petitioners specifically to evaluate the application of the RAM model to Ohio, and concluded, like the Hamill study, that the RAM model grossly and systematically overestimated pollution levels. *See e.g.* App. to Joint Brief at pp. 240-241.

¹⁵ (1) In *Maryland v. EPA*, 530 F.2d 215 (4th Cir. 1975), vacated on other grounds, 431 U.S. 99 (1977) (*per curiam*), a portion of an EPA-promulgated implementation plan under Section 110 of the Act required large employers to submit to the EPA a proposal for encouraging employees to utilize mass transit facilities. The proposed plan had not made any mention of such a program, however,

2. **Neither Vermont Yankee Nuclear Power v. Natural Resources Defense Council, Decided May 1, 1978, Nor Section 4 Of The Administrative Procedure Act, 5 U.S.C. § 553, Preclude A Court From Requiring Additional Procedural Safeguards Where, As Here, Computer Modeling Subsumes Both The Adjudicatory And The Legislative Function Of The Administrative Agency.**

This Court in *Vermont Yankee* found in a case involving "rulemaking in its pristine sense" (a licens-

and the subject had not come up in the public hearings on the proposed version. Even though the EPA had offered to consider comments submitted after the plan had become final, the court held the regulation invalid under APA Section 4. The opinion stated, in pertinent part (530 F.2d at 222):

"Since the disputed regulations were not subject to hearings at a state level, were not a part of the proposed regulations that were subject to comment, and were not mentioned prior to December 12, 1973 when they were issued in final form, it is clear that the intensive pre-promulgation inquiry anticipated by *Appalachian Power* [Appalachian Power Co. v. EPA, 477 F.2d 495 (4th Cir. 1973)] was not afforded the petitioners."

(2) In *Rodway v. Dep't of Agriculture*, 514 F.2d 809 (D.C. Cir. 1975), a public notice of rulemaking set forth a large number of rules for the administration of respondent's Food Stamp Program but included no reference to the adoption of an allotment system for Food Stamp coupons. As a result the court held that public notice was inadequate.

(3) In *Wagner Electric Corp. v. Volpe*, 466 F.2d 1013 (3rd Cir. 1972), the Court remanded a National Highway Traffic Safety Administration order governing the performance of turn signal and hazard-warning flashers because the notice had not clearly conveyed the scope of the intended rulemaking. The court emphasized that (466 F.2d at 1020; emphasis in original):

"... the Administrative Procedure Act requires notice *before* rulemaking, not after. The right of interested persons to petition for the issuance, amendment, or repeal of a rule ... is neither a substitute for nor an alternative to compliance with the mandatory notice requirements ..."

ing procedure under the Nuclear Regulatory Act) that (No. 76-419, decided May 1, 1978; slip opinion p. 21):

Absent constitutional constraints or extremely compelling circumstances "the administrative agencies 'should be free to fashion their own rules of procedure and to pursue a method of inquiry capable of permitting them to discharge their multitudinous duties.'" (Italics supplied.)

Review here is necessary to guide both courts and administrators in assessing the scope of this language and to make clear the import of the expressly stated exception.

The petitioners here do not seek to deny the agency freedom to order its own procedures. But the mechanical insistence of the EPA and the court on the bare minimum of procedural requirements totally ignores:

- a. The constitutional constraints which arise from the direct and near impact of the computer plan on particular individuals and sources;
- b. the compelling circumstances which are a result of the radical departure and immense prece-dential importance involved in use of untested computer modeling to predict violations, establish mathematically a general rule to deal with them, and apply the rule to specific facilities;
- c. the requirement of Section 110(c) of the Clean Air Act that the Administrator provide reasonable notice and hearing;
- d. the fact that the APA does not preclude more elaborate procedures where they are required by

constitution, by statute, or by "compelling circumstances."

Due process is an inherently flexible concept, as this Court recently reemphasized in *Goss v. Lopez*, 419 U.S. 565, 578 (1975). What kind of hearing is necessary depends on the peculiar circumstances of the case, and adapting hearing procedures to the demands of technical decision-making has been an issue of continuing controversy and confusion. See *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d 1 (D.C. Cir. 1975), cert. denied, 426 U.S. 941 (1976); see also Friendly, *Some Kind of Hearing*, 123 U. Pa. L. Rev. 1267 (1975); Boyer, *Alternatives to Administrative Trial-Type Hearings for Resolving Complex Scientific, Economic and Social Issues*, 71 U. Mich. L. Rev. 111 (1972).

The use of source-specific computer modeling procedures causes two distinct concerns, the resolution of which is necessary to insure fairness to the parties, accountability of the decision maker, and reliability of the decision. Cf. Friendly, *supra*, 123 U. Pa. L. Rev. at 1314-15:

First, the model itself must be measured against the standards of scientific rationality through some sort of dialogue between the agency and those outside, concerning design, assumptions, and empirical reliability. The highly critical Hamill and Enviroplan studies, and the absence of any inquiry of comparable weight on the other side, makes it clear that it cannot merely be assumed that the RAM plan is rational. See generally, the Joint Brief and Joint Reply Brief below relative to the use of the RAM model; see also, Timken Appendix, pp. A43-A200; *Appalachian Power*

Co. v. Environmental Protection Agency, 477 F.2d 495, 502-503 (4th Cir. 1973).

Second, the source specific input data must be tested against actual conditions to insure that inaccurate data do not lead to inaccurate and unacceptable results in particular cases. See *Seacoast Anti-Pollution League v. Costle*, 572 F.2d 872 (1st Cir. 1978).¹⁶

In light of the insensitivity and inadequacy of the procedure below, only this Court can provide direction to the EPA (and other agencies which seek to use computer modeling as a decision-making tool) as to

¹⁶ The *Seacoast* court's discussion of why adjudicatory procedures were necessary, in the context of an application for a discharge permit for a nuclear plant under the Federal Water Pollution Control Act, is highly relevant here. The court said (572 F.2d at 876-877):

We begin with the nature of the decision at issue. The EPA Administrator must make *specific factual findings* about the effects of discharges from a *specific point source*. On the basis of these findings the Administrator must determine whether to grant a discharge permit to a specific applicant. Though general policy considerations may influence the decision, the decision will not make general policy. Only the rights of the specific applicant will be affected. "As the instant proceeding well demonstrates, the factual questions involved in the issuance of section 402 permits will frequently be sharply disputed. Adversarial hearings will be helpful, therefore, in guaranteeing both reasoned decisionmaking and meaningful judicial review. In summary, the proceedings below were conducted in order 'to adjudicate disputed facts in particular cases,' not 'for the purposes of promulgating policy-type rules or standards.'"

This is exactly the kind of quasi-judicial proceeding for which the adjudicatory procedures of the APA were intended . . . *The panoply of procedural protections provided by the APA is necessary not only to protect the rights of an applicant for less stringent pollutant discharge limits, but is also needed to protect the public for whose benefit the very strict limitations have been enacted.* (Italics supplied; citation omitted.)

how to meet these concerns. See *Appalachian Power, supra*; see also *Walter Holm & Co. v. Hardin*, 449 F.2d 1009, 1016 (D.C. Cir. 1971) (effective presentation on novel and crucial matters required oral hearing and cross-examination).

Such direction is totally consistent with the Clean Air Act which requires the Administrator to insure that "reasonable notice and hearing" are provided by the state when it promulgates a state emission plan, and to consider the record of that hearing (Section 110(a)(2)), and likewise requires the Administrator himself to provide "such a hearing" when the state does not implement a plan. The absence of the talismanic words concerning decision "on the record" after opportunity for hearing, see *Independent Bankers Association of Georgia v. Board of Governors*, 516 F.2d 1206 (D.C. Cir. 1975), should not preclude either the Administrator or this Court from concluding that "reasonable notice and hearing" require more than the restricted notice and comment opportunities offered here.¹⁷

The central role of computer modeling in the decisionmaking process presents a novel procedural problem. Without some greater opportunity for participation of those affected, the process is a closed system—assumptions + data + equations inevitably leads to

¹⁷ Although the EPA raised the prospect of individual relief in its brief below, it removed all meaning from the prospect in the same breath stating that an individual review "would ordinarily involve a *showing* by petitioner, *consistent* with Agency methodology that it is *entitled* to a different emission limitation." EPA Brief, p. 24, n.40 (emphasis supplied). The two problems are that agency methodology is the RAM model which dictates particular as well as general results and that the implementation plan, contrary to Section 110(a)(2)(H) of the Clean Air Act, contains no specific procedures to obtain a revision.

ambient impact prediction + limitation regulations. If the model is to make the decision, all three of the inputs must be tested in public procedures. Measurement against reality is the only discipline for theoretical constructions of events, and when the theoretical construction becomes a bureaucratic rule, discipline can only be applied through full and open procedures, public hearing and cross-examination.

"If determinations such as the one at issue here are not made on the record, then the fate of the Hampton-Seabrook Estuary could be decided on the basis of evidence that a court would never see or, what is worse, that a court could not be sure existed." *Seacoast Anti-Pollution League v. Costle*, 572 F.2d 872, 877 (1st Cir. 1978).¹⁸

¹⁸ Petitioner objects as firmly to RAM's potential for inaccuracy, as it does to its inaccuracy in fact. Once EPA input data for RAM is ascertained, the comprehensive system closes, and remains closed, removed from the moderating influence of intermediate adjustment, until the bottom line emission limitations issue. Application of RAM to any one county is not much different from attempting to use a computer model to resolve injury claims arising from a multi-car automobile accident.

To gather input data, the computer expert would merely send out questionnaires to individuals involved in the accident to describe the events that occurred, the property damage sustained, and the injuries suffered. By the use of programming judgment to resolve credibility questions in cases of conflicting answers, and through sophisticated computer programs to predict medical costs, all in lieu of medical examination, issues of liability and damages could be mathematically adjudicated. Everything necessary for quick "scientific" disposal of the problem is present—everything but the human element to insure that personal rights are not violated by a vague or improperly framed questionnaire, improper exercise of discretion by the programmer, and unfounded assumptions in the cost-predictive programs. Few lawyers or judges would place much stock in such an adjudicative system, no matter how

3. The Failure Of The Court Below To Make Any Attempt To Understand Or Assess The Technical Issues Is Directly In Conflict With The Standard Of Careful Review Of Technical Issues Required By Citizens To Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971), And Followed By The First Circuit In South Terminal Corp. v. Environmental Protection Agency, 504 F.2d 646 (1974) And The D. C. Circuit In Ethyl Corp. v. Environmental Protection Agency, 541 F.2d 1, cert. denied, 426 U.S. 941 (1976).

In *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416, this Court instructed lower courts to make a searching inquiry into the basis for administrative decision and to reverse on the basis of "clear error of judgment." In *Ethyl Corp. v. Environmental Protection Agency*, the D.C. Circuit made it clear that the purpose of evidentiary examination is not to substitute judicial for administrative judgment, but rather to enable the court to determine whether the agency action was rational and based on the relevant factors. Full understanding of the evidence in the record is necessary before this function can be performed. The court said (541 F.2d at 36):

modern or scientific, in the absence of intermediate human checks and balances.

With RAM, source-specific data are gathered by questionnaire, followed by exercise of programming discretion. SO₂ sources within a county are interdependent—more than one source can contribute to a single violation, just as several automobiles can contribute to a single injury in a multi-car accident. The need for and degree of emission cutbacks is adjudicated through computer routines, without any verification of computer results against monitor observation. As in the hypothetical accident model, the procedural safeguards are inadequate to the requirements of reliability and fairness, particularly in the absence of any sort of verification. Finally, in addition to the record evidence that RAM systematically overpredicts, EPA's "untouched-by-human-hands" approach insulates such errors from the scrutiny that could otherwise eliminate such overpredictions.

"There is no inconsistency between the deferential standard of review and the requirement that the reviewing court involve itself in even the most complex evidentiary matters; rather, the two indicia of arbitrary and capricious review stand in careful balance. The close scrutiny of the evidence is intended to educate the court. It must understand enough about the problem confronting the agency to comprehend the meaning of the evidence relied upon and the evidence discarded; the questions addressed by the agency and those bypassed; the choices open to the agency and those made. The more technical the case, the more intensive must be the court's effort to understand the evidence, for without an appropriate understanding of the case before it the court cannot properly perform its appellate function."

In *South Terminal Corp. v. Environmental Protection Agency*, 504 F.2d 646 (1st Cir. 1974), the First Circuit declined to uphold the EPA's conclusions as to photochemical oxidant and carbon monoxide levels and reductions after a close review of the evidentiary record. The arbitrary and capricious standard cannot absolve the reviewing court of the need to review and evaluate the record. It said (504 F.2d at 665):

While reviewing courts are not to substitute their judgment for an agency's, they are to establish parameters of a rationality within which the agency must operate. A court would abdicate its function were it, when confronted with important and seemingly plausible objections going to the heart of a key technical determination, to presume that the agency could never behave irrationally. It has a duty to see that the objections are faced in a proper procedural setting and satisfactory answers provided demonstrating careful agency consideration.

See also *Texas v. Environmental Protection Agency*, 499 F.2d 289 (5th Cir. 1974), cert. denied, 427 U.S. 905 (1976), where the court reversed the EPA in part on the issue of the amount of reduction of hydrocarbon emission needed because the data submitted by the petitioners contradicted the predictions relied upon by the EPA.

There is no indication that the court below engaged in any such review of the facts.¹⁹ To the contrary, the court below contented itself with noting that overprediction by RAM was consistent with "insuring" appropriate air quality, that no better method had been presented, that the level of complaint was low in relationship to the number of persons affected, and that some of petitioners' comments formed the basis for devising some of the features of the RAM model.

None of this reasoning has any relevance to the reliability and technical accuracy of the RAM model. On this crucial issue the Court relied on a Dayton "Study" which consisted of a post-hoc visual com-

¹⁹ Indeed, examination of the opinion below, the opinion in *South Terminal*, and the five differing opinions in *Ethyl Corp.* shows that the appropriate role of courts in reviewing technical matters is a subject of some confusion. See *Ethyl Corp.*, *supra*, 541 F.2d at 34, n.74, for an extended discussion of the confusion among the lower courts in applying the *Overton Park* standard of review in cases such as the present one. The legislative history of the Clean Air Act amendments of 1977 emphasizes that Congress intends courts to continue to engage in a rigorous review of EPA action. House Report No. 95-564, 95th Cong., 1st Sess., "Joint Explanatory Statement of Committee of Conference," at p. 178 (1977), addresses the standard of review in these words:

"* * * With respect to the 'arbitrary and capricious' scope of review retained in these amendments, the conferees intend that the courts continue their thorough, comprehensive review which has characterized judicial proceedings under the Clean Air Act thus far."

parison of monitor and model-predicted data which was prepared for the review proceeding and merely placed a small selection of numbers from the two sources side by side on a sheet of paper. App. A, pp. 26a-27a; 572 F.2d at 1163. There was no indication that the EPA had considered this study, or anything relating RAM predictions to real monitor experience of sulfur dioxide emission, in devising and promulgating the RAM model.²⁰

A sampling of the unanswered or unremedied failings of the RAM model should serve to indicate the inadequacy of the review of the factual record made by the court below. Review by this Court is necessary, not to correct factual misapprehensions, but to direct reviewing courts to devote adequate attention to the technical factual record. The need is demonstrable in this case.

1. Computer dispersion modeling was utilized by the EPA to the exclusion of measured ambient air quality data. This circumstance presents directly the need for safeguards and checks if decisions are to be made by computer model; the fragmentary post-hoc Dayton study was only an attempt to validate the model against verified experience and it is procedurally and substantively worthless.²¹

²⁰ In *Texas v. EPA*, *supra*, the court upheld EPA's choice of a "proportional rollback" model to determine emission limitations. But this sort of model does not predict air quality as the RAM model does; it merely generates a pattern of emission limitations once air quality is determined from monitor data.

²¹ Inter alia, the few sampled sources are virtually all well under emission control limits so the "study" does not relate to performance of the model at the critical ambient levels.

2. The Sixth Circuit has never faced demonstration clearly made in the record that the model used totally inappropriate dispersion factors. *See* Timken Appendix at A102-A154.

3. The Sixth Circuit accepted as "conservative" the cumulative worst case assumptions about weather and full capacity operations, despite the fact that the record showed the cumulative probability of such a concatenation of circumstance to be zero. As Timken has established, it is virtually unheard of for even one industrial source to be using all of its capacity at any one time; the EPA nonetheless assumed that all sources would operate at full capacity all of the time. *See* Timken Appendix A20-A22; A88-A89.

4. The Sixth Circuit ignored the impact of the EPA's own guidelines on modeling which would seem to prohibit the free-hand procedure which the EPA has used in this case. These guidelines provide (App. to Joint Brief below at 354-355):

"To be certain that dispersion model estimates are as accurate as possible, *validation-calibration* is required. Any model may have faults which cause estimated concentration to be in error. Therefore, *it is necessary to validate and calibrate the model estimates.* * * *" (*Guidelines for Air Quality Maintenance Planning and Analysis, Vol. 12: Applying Atmospheric Simulation Models to Air Quality Maintenance Areas*, at 11-12. (Emphasis added.)

See also EPA, Guidelines on Air Quality Models, p. 3 (2d draft May 1977) (likewise requiring comparison of predictive model results with real air quality data).

5. With particular reference to Stark county, in which Timken's facilities are located, stringent and costly emission limitations were imposed despite the fact that there has never been a measured violation of national ambient air quality standards in Stark county.²²

This Court should assure that reviewing courts conduct a *searching inquiry* into the record to assure: That EPA's " * * * technical conclusions no less than others are founded on supportable data and methodology * * * ", *South Terminal Corp. v. Environmental Protection Agency*, 504 F.2d 646, 655 (1st Cir. 1974); that the predictor, EPA, makes " * * * a showing of reliability of the methodology of prediction * * * " when prediction is being used to overcome actual measured data, *International Harvester Co. v. Ruckel-*

²² The EPA's Technical Support Document (TSD) confirms this contention:

"The existing air quality monitoring data indicates the attainment of the [ambient air quality] standards." TSD, Vol. 1, at IV-53.

Further, Appendix G of the TSD indicates that federal primary ambient air quality standards were comfortably met in both 1973 and 1974. (TSD, Vol. II, App. G.5, at 721.) Gary L. Ewing, Air Pollution Control Director of the Canton City Health Department, testified as follows before U.S. EPA on January 6, 1976:

"ambient air quality levels of SO₂ as observed by our monitoring equipment have not substantiated any ambient air quality violations in any area of . . . [Stark] County."

The highest measured 24-hour concentration of sulfur dioxide in Stark County in 1973 was 126 micrograms per cubic meter (based on observation at five intermittent or "bubbler" monitoring sites), while the highest observed 24-hour concentration in 1974 was 170 micrograms per cubic meter (on the basis of observations at eight intermittent or "bubbler" sites). These highest 24-hour concentrations were well beneath the federal 24-hour ambient air quality standard of 365 micrograms per cubic meter.

shaus, 478 F.2d 615 (D.C. Cir. 1973); and that " * * * [EPA] is obligated to provide a complete analytical defense of its model * * * ." *American Public Gas Association v. Federal Power Commission*, 567 F.2d 1016, 1039 (D.C. Cir. 1977).

4. The Administrator Of The EPA Failed Adequately To Consider Objections Based On The Economic And Technological Infeasibility Of The Proposed Plan, Thus Posing Directly The Question Which This Court Left Open In *Union Electric Corp. v. Environmental Protection Agency*, 427 U.S. 246 (1976); And In Upholding His Action The Court Below Placed Itself In Conflict With Decisions Of The Ninth And First Circuits.

In *Union Electric Corp. v. Environmental Protection Agency*, 427 U.S. at 261, n.7, this Court explicitly left open the question "[w]hether claims of economic or technical infeasibility must be considered by the Administrator in drafting an implementation plan," while holding that the Administrator may not consider such claims in deciding whether or not to approve a state plan. This Court emphasized the opportunity for a petitioner to raise such claims before state authorities and the primary discretion of the state to formulate and administer its plan. 427 U.S. at 266-67. *Accord*, *Appalachian Power Co. v. Environmental Protection Agency*, 447 F.2d 495, 503 (4th Cir. 1973) (indicating that where the state promulgates the plan, it is the state's responsibility to provide adequate procedures). This Court further noted that such claims are allowed by the 1970 Amendments to the Clean Air Act "in situations where consideration of such claims will not substantially interfere with the primary congressional purpose of prompt attainment of the national air quality standards." 427 U.S. at 266.

This case presents directly the question left open by *Union Electric*. Since the Administrator drafted and promulgated the plan, the petitioner here has no other forum in which to assert claims of technological or economic infeasibility. Moreover, the systematic overprediction of sulfur dioxide emissions which the Sixth Circuit approved as a proper "conservative" approach to the air quality problem makes consideration of such claims particularly appropriate because it is unlikely that consideration of them will "interfere" with attainment of national air quality standards.

The Court below expressed serious doubt that it could entertain objections based on economic and technological infeasibility. App. A, pp. 29a-30a; 572 F.2d at 1164-65. Although it found, in the alternative that these objections were not compelling, this statement must be evaluated in the light of the court's acknowledgment of the enormous financial impact of the plan and its willingness nonetheless to approve a plan in which the controls are based on multiple overprediction of emissions as a "conservative" approach.

The issue presented is whether the Administrator may, without regard to technological or economic infeasibility, promulgate regulations which are calculated to provide such a "conservative" margin of prediction. While it is clear that the states may promulgate a plan more stringent than the standards, *see Union Electric Corp. v. Environmental Protection Agency*, 427 U.S. at 263-265, the Administrator is not granted such discretion by the Act.

As the Ninth Circuit recognized in *Bunker Hill Corp. v. Environmental Protection Agency*, 572 F.2d

1286 (1977), clarified on denial of rehearing, 11 Env. Rep. 1204 (BNA) (Dec. 28, 1977), the Administrator should not be empowered to make rules without regard to whether they can be carried out or whether the infeasible portions of such rules are necessary to attainment of national air quality standards. The unwarranted deference of the court below to the Administrator, and the Administrator's blithe disregard of issues of technological and economic infeasibility are inconsistent with *Bunker Hill, supra*, and with the reasoning of this Court in *Union Electric*. Cf. *Appalachian Power, supra*. See also *South Terminal Corp. v. Environmental Protection Agency*, 504 F.2d 646, 673-74 (1st Cir. 1974) (expressing confidence that hardship exemptions which would not interfere with attainment of the Act's purposes can be drafted by the Administrator on remand).

These considerations are particularly cogent here where various alternatives, including modifications of the RAM model suggested by several parties in supplemental comments and on brief, present the possibility of significant amelioration of the impact of the plan. See Joint Brief below at p. 17. There is no basis for believing that the choice is clean air at this cost or not at all. The Sixth Circuit below rejected any consideration of these alternatives stating that it need not conclude that the RAM plan was the "best possible approach." App. A, p. 21a; 572 F.2d at 1161. This response begs the question and illustrates the need for guidance by this Court.

If significant problems of economic and technological infeasibility can be avoided through plan modifications which do not interfere with the attainment of national air quality standards, it should be the duty

of the Administrator as well as the reviewing court to consider and evaluate those alternatives. The national commitment to attainment of air quality standards is not undercut by a requirement that these standards not be carelessly or profligately pursued when more feasible or less costly alternatives are available. This recognition is implicit in the fact that the Administrator is not given the authority to pursue any level of air quality he deems appropriate, but merely to promulgate plans to insure attainment and maintenance of national air quality standards as established by regulation. See App. A, p. 29a; 572 F.2d at 1164, n. 5. If concerns of equity and the balance between costs and benefits are to be jettisoned, serious constitutional as well as statutory problems would be raised, see *Union Electric Corp.*, 427 U.S. at 269 n.19. The constitutionally necessary rational relationship between the hardships imposed, and the legislative purpose in imposing them, cannot be maintained if the Administrator is free to act without any consideration of equity, necessity, and cost. This principle should be affirmed by this Court.

CONCLUSION

The petition for certiorari should be granted.

Respectfully submitted,

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July, 1978

APPENDIX A

APPENDIX A

Nos. 76-2090, 77-1367; 76-2225, 77-1366;
76-2240, 77-1355; 76-2242, 77-1359;
76-2244, 77-1363; 76-2276, 77-1368.

UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY, THE DAYTON POWER & LIGHT CO., THE OHIO EDISON CO., THE TOLEDO EDISON CO., THE TIMKEN CO., WHITE-WESTINGHOUSE CORP., THE STANDARD OIL CO. OF OHIO, INTERLAKE, INC., THE COULTON CHEMICAL CORP.,

Petitioners,

v.

ENVIRONMENTAL PROTECTION AGENCY, and DOUGLAS M. COSTLE, ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

PETITIONS for Review of Action of the Administrator of the Environmental Protection Agency.

Decided and Filed February 13, 1978.

Before: PHILLIPS, Chief Judge, EDWARDS and PECK, Circuit Judges.

EDWARDS, Circuit Judge. This court now has before it 23 petitions involving 32 companies filed against the United States Environmental Protection Agency which levy a variety of complaints against the federal agency's imposition of a sulfur

dioxide (SO₂) pollution control plan for industrial discharges into Ohio's ambient air. The issues, which have been extensively briefed and argued, divide into general legal and procedural complaints which might be applicable to any one of the petitioners and a wider variety of specific complaints about the application of the EPA controls to particular power-generating or industrial plants. The cases dealt with in this opinion¹ present the major general issues. Other individual cases, in addition to presenting one or more of the general issues, also present specific issues of fact. These are reserved pending a review of and reports on the factual disputes between the United States EPA and the individual petitioners.

The major issues dealt with in this opinion are: 1) intervenor, the State of Ohio, claims that this court should disapprove the federal plan as irrational and arbitrary and rely upon Ohio to come forward with a more rational plan sometime in the future; 2) petitioners claim that the EPA SO₂ plan should be remanded for hearings because the informal rulemaking hearings employed by EPA under 5 U.S.C. § 553 (1970 & Supp. V 1975) were inadequate; and 3) petitioners claim that the major model employed by the United States Environmental Protection Agency in establishing spe-

¹ This decision dismisses the objections to the regulations that apply to the following facilities:

- (a) Cleveland Electric Illuminating Co. — all facilities.
- (b) Dayton Power & Light Co. — Montgomery County facilities only.
- (c) Ohio Edison Co. — Lorain County facilities only.
- (d) Toledo Edison Co. — all facilities.
- (e) The Timken Co. — all steam generating units.
- (f) White-Westinghouse Corp. — all facilities. (Although there was some confusion on this point in the briefs, the record makes clear that White-Westinghouse's Franklin County facility is subject to the RAM model. See EPA Final Technical Support Document at IV-57.
- (g) Standard Oil Co. of Ohio — Lucas County steam generating units.
- (h) Interlake, Inc. — all steam generating units.
- (i) Coulton Chemical Corp. — all steam generating units.

cific emission limitations for particular plans is invalid both intrinsically and as applied. This model is termed the "Real-Time Air-Quality-Simulator Model" (hereinafter RAM).

THE HISTORY OF THIS LITIGATION

The United States Congress has been wrestling with the problem of pollution of the ambient air since 1955. See Act of July 14, 1955, Pub. L. No. 84-159, 69 Stat. 622. The original act has now been amended many times. It now is cited as the Clean Air Act and has been codified in 42 U.S.C. §§ 1857-1857(1) (1970 & Supp. V 1975).²

The prior history of litigation concerning sulfur dioxide emission controls in this court is set forth in *Buckeye Power, Inc. v. EPA*, 481 F.2d 162 (6th Cir. 1973) (*Buckeye Power #1*) and *Buckeye Power, Inc. v. EPA*, 525 F.2d 80 (6th Cir. 1975) (*Buckeye Power #2*).

National air quality standards for sulfur dioxide, one of the most important pollutants of the ambient air, were set by EPA in 1973 as follows:

§ 50.4 National primary ambient air-quality standards for sulfur oxides (sulfur dioxide).

The national primary ambient air quality standards for sulfur oxides measured as sulfur dioxide by the reference method described in Appendix A to this part, or by an equivalent method, are:

² The Clean Air Act was originally enacted in 1963, Pub. L. No. 88-206, 77 Stat. 392. It was amended in relatively minor ways three times during the following six years. Pub. L. No. 89-272, 79 Stat. 992 (1965); Pub. L. No. 89-675, 80 Stat. 954 (1966); Pub. L. No. 90-148, 81 Stat. 485 (1967).

The Act's present form, however, is derived from amendments adopted in 1970 and subsequently. Clean Air Act Amendments of 1970, Pub. L. No. 91-604, 84 Stat. 1676, as amended, Pub. L. No. 92-157, 85 Stat. 464 (1971); Pub. L. No. 93-319, 88 Stat. 246 (1974); Pub. L. No. 95-95, 91 Stat. 685 (1977).

The Act is being recodified as 42 U.S.C. §§ 7401-7626.

Cleveland Elec. Illum., et al. v. EPA Nos. 76-2090 etc.

(a) 80 micrograms per cubic meter (0.03 p.p.m.)—annual arithmetic mean.

(b) 365 micrograms per cubic meter (0.14 p.p.m.)—Maximum 24-hour concentration not to be exceeded more than once per year.

§ 50.5 National secondary ambient air quality standards for sulfur oxides (sulfur dioxide).

The national secondary ambient air quality standard for sulfur oxide measured as sulfur dioxide by the reference method described in Appendix A to this part, or by any equivalent method is 1,300 micrograms per cubic meter (0.5 p.p.m.) maximum 3-hour concentration not to be exceeded more than once per year.³

Ambient Air Standards (Primary & Secondary), 40 C.F.R. §§ 50.4, 50.5 (1976).

The federal Clean Air Act program which produced these standards is based primarily upon the adverse effect which air pollution has upon human life and health.

Acute episodes of high pollution have clearly resulted in mortality and morbidity. Often the effects of high pollutant concentrations in these episodes have been combined with other environmental features such as low temperatures or epidemic diseases (influenza) which may in themselves have serious or fatal consequences. This has sometimes made it difficult to determine to what extent pollution and temperature extremes are responsible for the effects. Nevertheless, there is now no longer any doubt that high levels of pollution sustained for periods of days can kill. Those aged 45 and over with chronic diseases, particularly of the lungs or heart, seem

³ The EPA plan for Ohio presently under consideration contains no separate implementation plan for secondary air quality standards. This issue is raised in the petition of the Northern Ohio Lung Association and will be considered and decided subsequently.

Nos. 76-2090 etc. *Cleveland Elec. Illum., et al. v. EPA*

to be predominantly affected. In addition to these acute episodes, pollutants can attain daily levels which have been shown to have serious consequences to city dwellers.

• • •

There is a large and increasing body of evidence that significant health effects are produced by long-term exposures to air pollutants. Acute respiratory infections in children, chronic respiratory diseases in adults, and decreased levels of ventilatory lung function in both children and adults have been found to be related to concentrations of SO₂ and particulates, after apparently sufficient allowance has been made for such confounding variable as smoking and socioeconomic circumstances.

Rall, *Review of the Health Effects of Sulfur Oxides*, 8 ENV'TAL HEALTH PERSPECTIVES 97, 99 (1974).

It appears that present national air quality standards have been set with little or no margin of safety. Adverse health effects are set forth in the two following charts; and the minimal or nonexistent margins of safety are vividly portrayed below:

TABLE 1.—EFFECTS THRESHOLD, BEST CHOICE SIGNIFICANT RISK LEVELS AND SAFETY MARGINS CONTAINED IN PRIMARY AMBIENT AIR QUALITY STANDARDS

Pollutant	Lowest best judgment estimate for effects threshold and best choice for significant risk levels			U.S. primary air quality standard	Margin of safety ^a (percent)
	Concentration	Averaging time	Adverse health effect		
Sulfur dioxide	300 to 400 ug/m ³	24 hour	Mortality increase	365 ug/m ³	None
Total suspended particulates	91 ug/m ³	Annual	Increased frequency of acute respiratory disease	80 ug/m ³	14
	250 to 300 ug/m ³	24 hour	Mortality increase	260 ug/m ³	None
Suspended sulfates	70 to 250 ug/m ³	do	Aggravation of respiratory disease	260 ug/m ³	None
	100 ug/m ³	Annual	Increased frequency of chronic bronchitis	75 ug/m ³	33
Nitrogen dioxide	15 ug/m ³	24 hour	Increased infections in asthmatics	None	None
Carbon monoxide	140 ug/m ³	Annual	Increased severity of acute respiratory infections in children	100 ug/m ³	40
	23 ug/m ³	do	Diminished exercise tolerance in heart patients	10 ug/m ³	**130
Photochemical oxidants	73 ug/m ³	8 hour	Diminished exercise tolerance in heart patients	40 ug/m ³	**82
	200 ug/m ³	1 hour	Increased susceptibility to infection	160 ug/m ³	25

^a Safety margin equals effects threshold minus standard divided by standard X 100.

** Safety margins based upon carboxyhemoglobin levels would be 100 percent for the 8 hour standard and 67 percent for the 1 hour standard.

TABLE 2.—THRESHOLD AND ILLUSTRATIVE HEALTH RISKS FOR SELECTED AMBIENT LEVELS OF SUSPENDED SULFATES

Adverse health effect	Threshold concentration and exposure duration	Illustrative health risk	
		Level	Sulfur dioxide equivalent
Increase in daily mortality	25 ug/m ³ for 24 hr or longer	2 1/2 percent increase in daily mortality	38 ug/m ³ for 24 hr
Aggravation of heart and lung disease in the elderly	9 ug/m ³ for 24 hr or longer	50 per cent increase in symptom aggravation	600 ug/m ³ for 24 hr
Aggravation of asthma	6 to 10 ug/m ³ for 24 hr	75 percent increase in frequency of asthma attacks	750 ug/m ³ for 24 hr
Excess acute lower respiratory disease in children	13 ug/m ³ for several yr	50 percent increase in frequency	450 ug/m ³ for 24 hr
Excess risk for chronic bronchitis	10 to 15 ug/m ³ for up to 10 yr	50 percent increase in risk	100 to 250 ug/m ³ annual average
		15 to 20 ug/m ³ annual average	100 to 250 ug/m ³ annual average

120 CONG. REC. 18973 (1974) (report of Drs. Finkele, Hammer & Cole).

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The major source of sulfur dioxide pollution of the ambient air are coal-fired plants — exemplified by power plants operated by some of the petitioners in this case.

Two other facts should be added from the extensive technical record in this case before we turn to the specific legal issues. The first is that sulfur dioxide emitted from plant stacks reacts with other elements in the atmosphere to form sulfuric acid mist and various suspended sulfates which are in fact the irritants which adversely affect human health. T. LEWIS, M. AMDUR, M. FRITZHAND & K. CAMPBELL, TOXICOLOGY OF ATMOSPHERIC SULFUR DIOXIDE DECAY PRODUCTS 17 (1972).

The second important fact is that these derivatives from sulfur dioxide tend to be airborne for days. They affect areas at great distances downwind, even when in the original sulfur dioxide form they were emitted from a high power plant stack. Rall, *Review of the Health Effects of Sulfur Oxides*, 8 ENV'TAL HEALTH PERSPECTIVES 97, 106 (1974).

The cases considered in this opinion represent the fourth time this sulfur dioxide control problem has been before this court. In the instant cases a hearing was held November 14, 1976, at which numerous arguments were advanced concerning petitioners' claims that they had been deprived of an adequate opportunity to comment upon the EPA sulfur dioxide standards. In particular they complained about not having an opportunity in advance to comment upon the EPA's use of the RAM model. The hearing resulted in the entry of an order by this court remanding all of these petitions to the EPA for reopening of the record to allow presentation of additional objections, corrections, and comment. The order provided in part as follows:

On receipt and consideration of the thirty-six (36) above-styled petitions for review attacking the emission standards for the State of Ohio applicable to sulphur dioxide (SO₂) promulgated by respondents Environmental

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Protection Agency (EPA) and Train on August 27, 1976; and

On receipt and consideration of respondent's motion to consolidate such petitions for hearing — and certain petitioners' objections thereto — and said motion to consolidate having been granted by this Court; and

On receipt and consideration of certain petitioners' motions for stay of the respondent's orders pending this Court's review; and

On receipt and consideration of respondent EPA's motion to hold a prehearing conference and certain concurrences therein, and such prehearing conference having been held after due notice to all parties; and

On inspection and consideration of petitioners' motions, briefs, and oral arguments and noting that many of them deal with claims of due process violations in respondent EPA's closing of the administrative record without further opportunity on the part of petitioners to present comment or evidence deemed by them to be essential to a just result,

Now therefore this Court, in the interest of as expeditious judicial disposition of this complex litigation as possible, hereby, *sua sponte*, extends to all petitioners in this consolidated proceeding a stay of enforcement of said orders of respondents EPA and Train, subject to the following conditions:

No petitioners shall be permitted to submit any new emission, process or air quality data. Comments relating to clerical or computational errors shall be permitted.

Whenever possible, petitioners shall make consolidated submissions to the Agency.

All submissions shall be made by petitioners no later than January 14, 1977, and the Agency shall prepare an appropriate response and shall amend the subject regu-

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lations if and as necessary within an additional 60 days therefrom.

The stay granted herein will terminate twenty-one (21) days after respondent EPA files with this Court the response called for above, unless otherwise directed by this Court.

Pursuant to the order of this court, the effective date of the SO₂ regulations was June 17, 1977. EPA has advised this court, however, that it has not begun enforcement proceedings in relation to any sources involved directly in this litigation.

Although this court's order allowed the petitioners 60 days for presentation of additional evidence and comment, EPA *sua sponte* extended the remand period briefly. Promptly upon notice that EPA had filed its response to petitioners' objections and comments resulting from the remand, this court scheduled two full days of hearings on these cases for purposes of as quick an adjudication at the appellate level as might be achieved.

DISPOSITION OF THE GENERAL ISSUES

1. The State of Ohio's Petition

On July 13, 1977, the State of Ohio belatedly moved for leave to intervene in this proceeding. Its motion attacked the EPA sulfur dioxide emission control plan as having an adverse impact on the Ohio coal industry, and the Ohio economy as a whole. The motion also asserted that the State was developing a sulfur dioxide plan which would eliminate excessive abatement requirements which Ohio perceived to exist in the federal regulations. This court granted the motion for leave to intervene and has considered the brief and the reply brief filed by Ohio. Under this first disposition heading we consider only Ohio's suggestion that this court reject the United States Environmental Protection Agency's

sulfur dioxide control plan and rely upon Ohio's implied promise to promulgate a state sulfur dioxide plan sometime in the future.

We reject this suggestion on the basis of a record of delay and default which has left Ohio in the position of being the only major industrialized state lacking an enforceable plan for control of sulfur dioxide.

It was clearly the intention of Congress to have a plan for control of sulfur dioxide emissions in place in all states in need of such control by the year 1972. Clean Air Act §§ 109(a), 110(a), 42 U.S.C. §§ 1857c-4(a), 5(a) (1970 & Supp. V 1975). It was equally clearly the intention of Congress that the preferred mechanism for establishment of such a plan was through the establishment and operation of a state environmental protection agency. § 107(a), 42 U.S.C. § 1857c-2(a) (1970). On January 30, 1972, Ohio did submit a plan for approval by the Administrator of the United States Environmental Protection Agency under Section 110 of the Act and the Administrator approved that plan. That approval, however, was challenged in this court on the ground that such approval required a federal rulemaking hearing prior to the required approval by the federal Administrator. Among other claims laid before this court in that petition was an attack on the sulfur dioxide control scheme contained in the Ohio plan, claiming "there is presently no technologically feasible method of removing from their coal burning emissions an amount of sulfur sufficient to meet the standards." See *Buckeye Power, Inc. v. EPA*, 481 F.2d 162, 167 (6th Cir. 1973). It was also petitioners' contention in that same litigation that they had not been allowed to document these claims of impossibility before the federal Administrator prior to his approval of the state plans. On analysis of these arguments, this court vacated the approval of the Ohio state plan and remanded the case to the Agency for compliance with Section 4 of the Administrative Procedure Act, 5 U.S.C.

§ 553 (1970 & Supp. V 1975), which requires adherence to informal rulemaking procedures.

Before the hearing could be held which was called for in *Buckeye Power #1, supra*, the governor of Ohio, on August 27, 1972, "withdrew" the sulfur dioxide portion of the state EPA plan. At that point Ohio began work on a new plan for sulfur dioxide control. On May 30, 1974, the second plan was submitted to the United States EPA for approval. It had, however, been challenged at the state level and was partially vacated on procedural grounds by the Ohio Environmental Board of Review on September 12, 1974, and for a second time on July 16, 1975, the governor of Ohio withdrew the Ohio plan to control sulfur dioxide.

The Clean Air Act, as amended, provides in part:

(c)(1) The Administrator shall, after consideration of any State hearing record, promptly prepare and publish proposed regulations setting forth an implementation plan, or portion thereof, for a State if—

(A) the State fails to submit an implementation plan for any national ambient air quality primary or secondary standard within the time prescribed

Clean Air Act § 110(c)(1), 42 U.S.C. § 1857c-5(c)(1) (Supp. V 1975).

Clearly, the State of Ohio has failed to submit an implementation plan for sulfur dioxide for which a national ambient air quality primary standard has been prescribed. Equally clearly, five years have now elapsed beyond the date when such an implementation plan was called for under the Clean Air Act. Under these circumstances, we find no warrant, consistent with the purposes of the federal legislation, for giving heed to Ohio's petition for further delay.

Intervenor Ohio's other objections to the United States EPA's

sulfur dioxide control plan will be considered under Part 3 of the disposition section of this opinion.

2. The Additional Remand and Cross-Examination Issue

The leading brief in this series of cases filed on behalf of the utilities opens its argument for remand as follows:

The Most Appropriate Manner To Resolve The Multitude Of Issues Raised Is A Remand To The EPA With Directions To Hold Further Hearings To Reconsider The Significant Issues; Given The Nature Of This Rulemaking, Any Remand Should Incorporate Procedural Safeguards Such As Right To Cross-Examine Or Question EPA.

Admittedly, there is no statutory requirement that EPA afford the regulated the opportunity to confront its decision makers through adjudicative-type hearings. See *Buckeye Power, Inc., supra*. [*Buckeye Power, Inc. v. EPA*, 481 F.2d 162 (1973)].

However, this EPA promulgation contains so many specific findings and actions that the normal comment period has not been sufficient to expose and evaluate all of the important facts before this Court. EPA has promulgated emission limits specific to a plant, has applied specific diffusion models specific to a plant, and has reached specific conclusions regarding economics specific to a plant. Each decision is based on fact upon fact and conclusion upon conclusion. In essence and in operation, this plan and its formulation smack of the issuance of an order as defined by EPA.

In *Buckeye Power #1*, a panel of this court, prior to the first remand of the sulfur dioxide problem for federal hearings, considered the question as to whether or not adjudicatory hearings (including cross-examination) were re-

quired. The opinion rejected this suggestion with the following reasoning:

However, as heretofore noted, the petitioners herein do not simply request a remand with instructions to adhere to the informal rulemaking dictates of Section 553 of the APA; they also request a full-scale evidentiary hearing before the Administrator to adjudicate their complex and intricate claims of high cost-benefit, technological infeasibility and resource unavailability. We cannot accept this position.

Administrative rulemaking which is to be preceded by extensive hearings where "[a] party is entitled to present his case or defense by oral or documentary evidence, to submit rebuttal evidence, and to conduct such cross-examination as may be required for a full and true disclosure of the facts . . ." (5 U.S.C. § 556(d) (1967)) is required only when the last sentence of Section 553(c) of the APA applies. This section provides:

"When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection." (Emphasis added). (5 U.S.C. § 553(c) (1967)).

(Sections 556 and 557 of the APA outline the requirements for extensive, adjudicatory-type hearings.)

Thus, when a statutory provision directing certain agency action states that such action shall be "made on the record after opportunity for an agency hearing," then, and only then, is the agency required to have full-scale adjudicatory hearings prior to rulemaking. * * *

There is no provision that, in approving or disapproving proposed state pollution-abatement plans pursuant to 42 U.S.C. § 1857c-5(a)(2) (1973 Supp.), the Administrator shall make a determination "on the record after an opportunity for an agency hearing." Further-

more, when Congress intended that actions of the Administrator of the EPA be preceded by adjudicatory-type hearings it either specifically outlined the type of hearings, (42 U.S.C. § 1857f-5a(c)(1) (1973 Supp.)), or invoked the determination "on the record" provision of 5 U.S.C. § 553(c) (1967). See 42 U.S.C. § 1857c-5(f)(2) (1973 Supp.); 42 U.S.C. § 1857f-5(b)(2)(B) (1973 Supp.). On these grounds alone we would reject the petitioners' argument that the Administrator is required to have full-scale adjudicatory-type hearings prior to acceptance of the state plans.

Buckeye Power, Inc. v. EPA, 481 F.2d 162, 172-73 (6th Cir. 1973). (Footnote omitted.)

More importantly, we note the following discussion of the issue now before us in the unanimous opinion in *United States v. Allegheny-Ludlum Steel Corp.*, 406 U.S. 742 (1972), wherein the Supreme Court of the United States said:

This Court has held that the Administrative Procedure Act applies to proceedings before the Interstate Commerce Commission. *Minneapolis & St. Louis R. Co. v. United States*, 361 U.S. 173, 192 (1959). Appellees claim that the Commission's procedure here departed from the provisions of 5 U.S.C. §§ 556 and 557 of the Act. Those sections, however, govern a rulemaking proceeding only when 5 U.S.C. § 553 so requires. The latter section, dealing generally with rulemaking, makes applicable the provisions of §§ 556 and 557 only "[w]hen rules are required by statute to be made on the record after opportunity for an agency hearing" The Esch Act, authorizing the Commission "after hearing, on a complaint or upon its own initiative without complaint, [to] establish reasonable rules, regulations, and practices with respect to car service . . .," 49 U.S.C. § 1(14)(a), does not require that such rules "be made on the record." 5 U.S.C. § 553. That distinction is determinative for this case. "A good deal of significance lies in the fact that some statutes do expressly require determinations on the

record." 2 K. Davis, *Administrative Law Treatise* § 13.08, p. 225 (1958). Sections 556 and 557 need be applied "only where the agency statute, in addition to providing a hearing, prescribes explicitly that it be 'on the record.'" *Siegel v. Atomic Energy Comm'n*, 130 U.S. App. D. C. 307, 314, 400 F.2d 778, 785 (1968); *Joseph E. Seagram & Sons, Inc. v. Dillon*, 120 U.S. App. D. C. 112, 115 n. 9, 344 F.2d 497, 500 n. 9 (1965). Cf. *First National Bank v. First Federal Savings & Loan Assn.*, 96 U.S. App. D. C. 194, 225 F.2d 33 (1955). We do not suggest that only the precise words "on the record" in the applicable statute will suffice to make §§ 556 and 557 applicable to rulemaking proceedings, but we do hold that the language of the Esch Car Service Act is insufficient to invoke these sections.

Because the proceedings under review were an exercise of legislative rulemaking power rather than adjudicatory hearings as in *Wong Yang Sung v. McGrath*, 339 U.S. 33 (1950), and *Ohio Bell Telephone Co. v. Public Utilities Comm'n*, 301 U.S. 292 (1937), and because 49 U.S.C. § 1(14)(a) does not require a determination "on the record," the provisions of 5 U.S.C. §§ 556 and 557 were inapplicable.

This proceeding, therefore, was governed by the provisions of 5 U.S.C. § 553 of the Administrative Procedure Act, requiring basically that notice of proposed rulemaking shall be published in the Federal Register, that after notice the agency give interested persons an opportunity to participate in the rulemaking through appropriate submissions, and that after consideration of the record so made the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. The "Findings" and "Conclusions" embodied in the Commission's report fully comply with these requirements, and nothing more was required by the Administrative Procedure Act.

United States v. Allegheny-Ludlum Steel Corp., *supra* at 756-58. (Footnote omitted.)

Further, in *United States v. Florida East Coast R. Co.*, 410 U.S. 224, 238 (1973), the Supreme Court reiterated and reinforced its decision in *United States v. Allegheny-Ludlum Steel Corp.*, *supra*. In the *Florida Coast R. Co.* case the Court held:

Section 553 excepts from its requirements rulemaking devoted to "interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice," and rulemaking "when the agency for good cause finds . . . that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest." This exception does not apply, however, "when notice or hearing is required by statute"; in those cases, even though interpretative rulemaking be involved, the requirements of § 553 apply. But since these requirements themselves do not mandate any oral presentation, see *Allegheny-Ludlum*, *supra*, it cannot be doubted that a statute that requires a "hearing" prior to rulemaking may in some circumstances be satisfied by procedures that meet only the standards of § 553. The Court's opinion in *FPC v. Texaco, Inc.*, 377 U. S. 33 (1964), supports such a broad definition of the term "hearing."

Similarly, even where the statute requires that the rulemaking procedure take place "on the record after opportunity for an agency hearing," thus triggering the applicability of § 556, subsection (d) provides that the agency may proceed by the submission of all or part of the evidence in written form if a party will not be "prejudiced thereby." Again, the Act makes it plain that a specific statutory mandate that the proceedings take place on the record after hearing may be satisfied in some circumstances by evidentiary submission in written form only.

We think this treatment of the term "hearing" in the Administrative Procedure Act affords a sufficient basis for concluding that the requirement of a "hearing" contained in § 1 (14)(a), in a situation where the Commis-

sion was acting under the 1966 statutory rulemaking authority that Congress had conferred upon it, did not by its own force require the Commission either to hear oral testimony, to permit cross-examination of Commission witnesses, or to hear oral argument.

United States v. Florida East Coast R. Co., *supra* at 240-41.

Taking those precedents into account, it seems clear to us that the legislative-type hearings conducted by the United States EPA concerning the Ohio SO₂ control plan were consistent with the provisions of the Clean Air Act and the Administrative Procedure Act, and we further conclude that the hearings are not inconsistent with the due process clause of the Fourteenth Amendment. As pointed out in the quotation from *Buckeye Power #1*, *supra*, Congress did not insert into the Clean Air Act the language requiring the Administrator to make determinations "on the record after an opportunity for an agency hearing" which the Supreme Court has held to trigger the requirement of an adjudicative hearing. And if there was a legitimate due process complaint arising from the fact that petitioners had not had a chance to comment upon the RAM model as employed by United States EPA in its Ohio SO₂ control plan, we believe it was surely cured by this court's remand for reopening of the administrative record and United States EPA's reconsideration thereafter.

We note, as petitioners encourage us to, that some cases in other circuits hold that it is the importance and complexity of the issues decided by the administrative agency which should determine the kind of hearing procedures required rather than any formal classification of the process as either rulemaking or adjudicatory. See *Appalachian Power Co. v. EPA*, 477 F.2d 495, 500-01 (4th Cir. 1973); *Walter Holm & Co. v. Hardon*, 449 F.2d 1009, 1015 (D.C. Cir. 1971). Typically, however, it is important and complex problems which Congress assigns to administrative agencies. Thus far

neither Congress nor the Supreme Court has elected to adopt such a flexible standard or to assign exclusive responsibility for the choice of agency hearing procedures to the federal courts.

Several petitioners also argue that this Circuit should follow the example of the Ninth Circuit in *Bunker Hill Co. v. EPA*, — F.2d — (9th Cir. 1977) (decided July 5, 1977), to the extent of remanding the proposed sulfur dioxide control standards to allow cross-examination of United States EPA's experts and additional comment thereafter.

In contrast to our remand order of November 12, 1976, the Ninth Circuit did provide for cross-examination pertaining to what it termed a highly complex and technical issue concerning the technological feasibility of the use of sulfur burners to effect control of Bunker Hill's lead smelter emissions. While we believe that cross-examination of an administrative agency's experts is not a required or normal part of informal rulemaking under Section 553, we do not exclude the possibility that a case may be presented to this court wherein remand for cross-examination about disputed facts will prove both logical and necessary.

We do not, however, find any legal requirement or practical need for any more hearings, with or without cross-examination, in order to answer the three major general issues posed in the instant cases. Petitioners have had ample opportunities to present their views to the agency. A full record has been written. There has already been an inordinate delay of five years longer than Congress contemplated.

3. The RAM Model

The petitioners in these cases center most of their criticisms upon the United States EPA's use of the Real-Time Air-Quality-Simulation Model ("RAM") which was employed by the agency in preparation of the Ohio sulfur dioxide control plan. RAM is a dispersion model which evaluates the interaction

of a variety of facts in order to make predictions concerning the contribution to the pollution of the ambient air by specific plants. Its formula takes into account the capacity of each plant on a stack-by-stack basis and adds thereto smoke-stack height, surrounding terrain, and weather conditions. The model is operated on the assumption that the plants concerned operate 24 hours a day at full capacity and predictions are made for every day of the year. The ultimate standards are set according to the predicted second-worst day in terms of pollution results shown.

In comparison to all other prior methods of controlling pollution, RAM starts with a solid, ascertainable data base. This is the established design capacity of the power plants in question related to the sulfur content of the fuel used by each. From these factors the "emissions data" for each plant is developed.

When stack height, wind, weather, terrain, land use, etc., are figured in, the RAM model has the additional value of allowing its user to predict with considerable accuracy the relative contributions of specific power plant stacks to the points of maximum concentration of pollution of the ambient air.

The RAM model was actually developed as a result of United States EPA's public hearings on the proposed plan for Ohio after five days of hearings on said proposed plan in Columbus, Cleveland, Cincinnati, and Steubenville at which petitioners involved in this current litigation were given an opportunity (which most accepted) to appear, testify, or submit comments. At those hearings the major source of criticism from industries, including some of the present petitioners, was that the plan then under consideration did not determine limitations by individual stacks to a sufficient degree. EPA in its brief in this case compares the "rollback" model employed in the preparation of the first Ohio plan to dispersion

models like RAM, which is now the source of present controversy:

Unlike the rollback model, the dispersion models used in developing the promulgated plan allow a determination of the cause-effect relationship between the SO₂ emissions of the pollution sources in an area and the resulting ambient air quality. Therefore, it is possible to determine the proportion by which each source must reduce emissions to meet ambient standards. With the use of the rollback model, in contrast, each source's emissions in the region, whether or not they contributed to a pollution problem, were required to be reduced. Through dispersion modeling, emission limitations can now be set with increased precision. Overcontrol is minimized, so that the plan will still insure attainment and maintenance of the air quality standards, but at a much reduced cost to the sources. This is most clearly demonstrated by comparing emission limitations for power plants under the various plans. Power plants account for approximately 80% of the sulfur dioxide emissions in the State.

However, achievement of this added precision requires a massive analytical task. Tremendous amounts of data are required for each source analyzed. In addition to the emissions data for each source, dispersion modeling requires detailed information on all the factors that affect the dispersion of emissions. These include the height of the source's stack (or usually stacks), the spatial orientation of the sources to each other, the topography of the area and the effects it will have on dispersion, and, of crucial importance, detailed weather data for the area.

All this information is needed so that the computer analysis reflects actual conditions. For example, a gaseous pollutant emitted over a grassy field will disperse much differently than if the pollutant is emitted over a large urban area. There the dispersion will be affected not only by the local weather conditions but also by the greater

turbulence caused by the different types of surface areas and heat sources throughout a city.

EPA goes on to point out that there are more than 1,000 point sources in the State of Ohio and more than 2,000 area sources, and that in relation to emission data, United States EPA utilized (among other sources) the data base on sulfur dioxide required to be reported to the State of Ohio under OHIO REV. CODE ANN. §§ 3704.03(I), 3704.05(c) (Page 1971 & 1976 Supp.).

It is, of course, no part of the responsibility of this court to determine whether the RAM model represents the best possible approach to determining standards for the control of sulfur dioxide emissions. Our standard of review of the actions of United States EPA is whether or not the action of the agency is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 305(a), 91 Stat. 775 (to be codified as 42 U.S.C. § 7607(d)(9)(A)). Thus, we are required to affirm if there is a rational basis for the agency action and we are not "empowered to substitute [our] judgment for that of the agency." *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971).

Our review of this record convinces us that we cannot properly hold that United States EPA's adoption of the RAM model for predicting sulfur dioxide emissions and for fixing maximum levels of sulfur dioxide emissions by specific sources was arbitrary and capricious or beyond the agency's authority under the Clean Air Act. The factors cited below support EPA's argument that the RAM model is supported by sufficient evidence so that EPA's adoption cannot be held arbitrary and capricious:

1) United States EPA's use of the "rollback" model — the principal basis of its first plan on which five days of public hearings were conducted in Ohio — was strenuously objected

to by representatives of many of the present petitioners because it was not source-specific and, as a consequence, tended to require more stringent sulfur dioxide controls than would be required if plant capacity, fuel, population, smokestack height, wind and climate were all taken into account. Thus John R. Martin, of Smith & Singer Meteorologists, Inc., commented on behalf of Ohio utilities on the first United States EPA plan as follows:

More sophisticated modeling is necessary in all seven of the urban counties that use the proportional rollback. In this way, the Federal air quality standards can be attained without unnecessary SO₂ emission restrictions being imposed upon sources that do not contribute to an SO₂ problem.

• • •

We recommend that new strategies be tested which will more fairly identify and control SO₂ sources that create SO₂ problems.

Similarly Dr. Howard M. Ellis, of Enviroplan, Inc., said on behalf of Ohio power plants:

[I]n developing an SO₂ control program for this plant, Region V did not consider economically efficient alternatives to constant uniform emission standards — alternatives such as utilizing a supplementary control system to achieve air quality standards or using separate SO₂ emission standards by stack in accordance with each stack's contribution to ground-level SO₂ concentrations. Separate emission standards by stack can reduce considerably the cost of achieving air quality standards

2) EPA responded to these arguments favorably by devising and adopting the RAM model which did employ all of these source-specific factors.

3) Further, as shown on the following charts, the United

States EPA 1976-1977 SO₂ control plan (principally based upon the RAM and MAX-24 models) shows less stringent regulation on a county-by-county basis when compared to the Ohio SO₂ control plans originally promulgated in 1972 and 1974. In addition, when the comparison is limited to petitioners involved in this litigation, but including all of their facilities which were subjected to RAM modeling (and which are identified in this record), we find the plan slightly less strict on a facility comparison basis than the Ohio 1972 plan by a count of 24 to 17, and slightly more strict than the Ohio 1974 plan by a count of 23 to 20.

These comparisons do not, of course, necessarily demonstrate RAM's accuracy. Rather, the comparison with Ohio's previous plans (based upon the earlier rollback model which was used and accepted nationwide) tends simply to show that the choice of RAM modeling lay within administrative discretion.

RELATIVE STRINGENCY OF US EPA REGULATIONS AND PREVIOUSLY PROMULGATED REGULATIONS

	Ohio EPA 1972	Ohio EPA 1974	
1. US EPA 1976-77 urban RAM regs are: stricter than	regs for: 14	regs for: 20	of petitioners' facilities ^a
less strict than	21	17	"
the same as	1	1	"
ambiguous ^b compared with	6	4	"
2. US EPA 1976-77 rural RAM regs are:			
stricter than	3	3	"
less strict than	3	3	"
the same as	0	0	"
ambiguous ^b compared with	0	0	"

3. US EPA 1976-77
regs (all models) are:
- | | | | |
|--------------------------------------|----|----|----------------------------|
| stricter than | 4 | 7 | Ohio counties ^c |
| less strict than | 40 | 35 | " |
| the same as | 0 | 0 | " |
| ambiguous ^b compared with | 24 | 26 | " |
4. US EPA 1976-77
regs (all models) are:
- | | | | |
|--------------------------------------|----|----|---|
| stricter than | 22 | 32 | of petitioners' facilities ^a |
| less strict than | 50 | 43 | " |
| the same as | 1 | 1 | " |
| ambiguous ^b compared with | 14 | 11 | " |

^a Including facilities to the regulation of which petitioners do not object.

^b I.e., stricter for some stacks or facilities and less strict for others; or employing different units of measurement, rendering comparison impossible; or insufficient data available for meaningful comparison.

^c Twenty other counties contain no point sources of SO₂ emissions.

All comparisons are based on the data set out in Appendices A, B and C.

4) While this court has currently before it some 32 petitioners protesting the United States EPA's plan for SO₂ emission control for Ohio, it must be remembered that Ohio is estimated to have over 1,000 point sources and over 2,000 area sources of SO₂ pollution.

5) The RAM model is a general formula which can be applied to many individual sources of pollution to derive specific estimates of SO₂ emission rates for each. It employs a wider, more complete and more accurate data base than any prior model yet employed in devising a sulfur dioxide control strategy for a state or county. The crucial data with which the RAM model starts is the design capacity figure, plus the fuel sulfur content, from which is computed the SO₂ emission rate for each of the heating or power plants sought to be controlled. Thus at the outset the RAM model starts with ascertainable specific figures for each source where disputes can be resolved by inspection of the equipment or fuel concerned. Many of the additional components such as stack height, wind direction, physical relationship of sources to each other, and topography of the area are similarly ascertainable as matters of fact. With the enormous financial stakes involved in this litigation, every effort to avoid disputes about the accuracy of the data base should be made. This record shows that United States EPA's design of the RAM model was brought about at least in large part by Ohio industry's requests for greater specificity and hence lower costs of compliance with National Air Quality Standards.

6) While there may yet be developed (and hopefully will be) a better method of establishing a control strategy for sulfur dioxide emissions than the RAM model, no one has yet come forward with such. Nor do petitioners point to any such.

This is not to ignore that petitioners do cite Enviroplan's claims of a superior model termed Air Pollution Evaluation

System. This record shows, however, that United States EPA asked for the Enviroplan model and was refused, and is now refused the operative details of that model on the grounds of proprietary interest. While such withholding may be both defensible as a matter of law, and understandable as a matter of economics, this court cannot consider Enviroplan's model as available technology until and unless it is fully disclosed and evaluated by United States EPA — the agency charged by Congress with making these decisions.

7) We recognize that this record does not present positive proofs of the accuracy of RAM's predictions. Thus far technology has not developed foolproof methods for validating predictions concerning pollution of the ambient air absent years of collection of monitoring data with far more monitors and far more personnel than have thus far been available. Obviously, also, the monitor locations and the receptor sites for the RAM predictions must correspond.

We find such identity of monitor locations and receptor sites available in this administrative record for the City of Dayton.

The EPA Appendix contains:

1) RAM model computer printouts showing predicted second-highest 24-hour concentrations of sulfur dioxide for several receptor sites, and the location of those sites. (EPA Appendix, Vol. IV, at 85-94, Certified Index XIII. EEE.1.a.3.);

2) Air quality data for 1972-76 at several Dayton sulfur dioxide monitors (EPA Appendix, Vol. IV, at 61, 79, Certified Index XV.K.2.r. and s.); and

3) The locations for the Dayton monitors (EPA Appendix, Vol. IV, at 95-96, Certified Index XII.B.4.a.(1)(d)).

The following chart displays the data contained in these documents:

Site No.	Second-Highest 24-hr Concentration Predicted by RAM (micrograms per cubic meter)	Actual Monitor Readings (micrograms per cubic meter)				
		1972	1973	1974	1975	1976
1	195	•	•	219	•	•
2	201	73	438	181	163	81
3	83	•	•	117	62	57
4	109	•	•	151	109	17
5	161	57	198	•	68	41
6	207	•	13	66	110	75

Our analysis of these data⁴ shows that the yearly second-highest concentration of SO₂ pollution (for a 24-hour average) actually recorded on available monitors exceeded the RAM model prediction for each location once in a five-year period at five out of six locations. This analysis certainly falls short of showing RAM's predictive perfection. But it certainly tends to show that the EPA's use of RAM, if conservative, cannot be held to be arbitrary and capricious. *See Sierra Club v. EPA*, 540 F.2d 1114, 1136 (D.C. Cir. 1976), *cert. granted on different issues*, 97 S.Ct. 1597 (1977). *See also Mission Industrial, Inc. v. EPA*, 547 F.2d 123, 128-29 (1st Cir. 1976).

We recognize that petitioners presented Enviroplan's study on RAM predictions and existing monitor results for the three counties in which Akron, Toledo and Canton are located, and that they contend that the study's results show gross over-predictions by RAM. Reevaluation of RAM predictions, however, showed that most discrepancies were occasioned by data

⁴ Petitioners object with vehemence to EPA's reference in its brief to its discussion of these data as a "study," calling our attention to the fact that the comparison was made by EPA attorneys after the closing of the record. Clearly, however, the raw data to which we have referred and which we have inspected were and are available in the administrative record of this case.

errors factored into the original RAM predictions for these three counties.

We have also considered the argument based on the Hamill study of RAM's application to St. Louis and Enviroplan's subsequent study thereof. While this latter commentary must be taken into account, when weighed against all other record evidence it fails to convince us that United States EPA's use of RAM was arbitrary and capricious.

8) Finally, as we pointed out at the beginning of this opinion, SO₂ emissions have a direct impact upon the health and the lives of the population of Ohio — particularly its young people, its sick people, and its old people. If the RAM model did overpredict emission rates, such a conservative approach in protection of health and life was apparently contemplated by Congress in requiring that EPA plans contain "emission limitations . . . necessary to insure attainment and maintenance" of national ambient air standards. 42 U.S.C. § 1857c-5(a)(2)(B) (1970). (Emphasis added.)

In summary, we hold that United States EPA's adoption and employment of the RAM model as its general working tool was based upon informal rulemaking which satisfied both the requirements of the Clean Air Act, the Administrative Procedure Act, and the due process requirements of the United States Constitution. Further, the record indicates that the Administrator's action in promulgating the sulfur dioxide control regulations for Ohio through use of the RAM model was a rational choice which was well within the discretion committed to him and his agency. We decline petitioners' requests to set the disputed orders aside on the ground that they are arbitrary and capricious.

OTHER ISSUES

Somewhat half-heartedly the leading brief for the utilities attacks the United States EPA plan for SO₂ controls in Ohio as excessively costly and asserts that the satisfactory operation of Flue Gas Desulfurization machinery ("scrubbers") has not been demonstrated.

We note that the United States EPA control strategy for Ohio does not rely heavily upon Flue Gas Desulfurization. (EPA estimates — and petitioners do not dispute — that only six utilities will choose this compliance route.) Alternatives to installation of "scrubbers" are the purchasing and use of low sulfur coals or the employment of coal cleaning or blending techniques. There is no doubt, of course, that SO₂ controls will indeed be costly. EPA estimates capital costs for Ohio industry of well over half a billion dollars and annual costs of 171 million dollars. It also projects these costs as requiring a 3% increase in annual electric bills for the consumers who will ultimately pay them — and who will also breathe the less polluted air. Basically the choice of economic burden versus continued deterioration of the air we breathe was made by Congress. In this litigation no issue is raised concerning Congress' power to do so.

We have genuine doubt that this court has the power to review what we regard as petitioners' slightly disguised economic and technological infeasibility arguments. See generally *Union Electric Co. v. EPA*, 427 U.S. 246, 265-66 (1976).⁵ Since this issue does not appear to be definitely resolved as to a United States EPA-designed implementation plan (such as we deal with here), see *Union Electric Co. v. EPA*, *supra* at 261 n.7, we observe that if we did have such power, we

⁵ United States EPA's SO₂ control plan for Ohio has as its goal the attainment of national air quality standards. It does not seek to exceed them. See Note, *The Clean Air Act: "Taking a Stick to the States,"* 25 CLEVE. ST. L. REV. 371, 405 (1976).

would conclude that the technical record compiled in the agency proceeding provides ample support for the economic and technological feasibility of the SO₂ control strategies which United States EPA has promulgated for Ohio.

Petitioners, Cleveland Electric Illuminating Co. and Dayton Power & Light Co., enter objections to the classification of three power plants as "urban." Inspection of the geographic location of these plants and of the population distribution in the near vicinity convinces us that the United States EPA classification cannot properly be termed arbitrary and capricious. Power plant pollution of the ambient air is no respecter of municipal boundary lines.

We note petitioners' objection to the use of the urban dispersion coefficients employed in the RAM model. EPA defends their use by citing the St. Louis study and by noting that no better or more accurate coefficients are available. Since to this observation petitioners reply by asking for more study, we conclude that study should progress while the purposes of the Clean Air Act were being served rather than by indefinite postponement of EPA's mandated task of reducing SO₂ pollution in Ohio.

No other material issues are presented.

One petition pending before this court from the Northern Ohio Lung Association attacks United States EPA's failure to promulgate a separate implementation plan for the "secondary standards" for the ambient air. This petition will be the subject of separate consideration.

Similarly, this opinion does not govern any petitions where the RAM model was not used. We do not decide any specific fact disputes raised by any petitioner as to plants other than those treated in this opinion.⁶ Decision of these cases will follow.

⁶ See note 1, *supra*.

For the reasons stated above, the decision of the Administrator in imposing the SO₂ control plan is affirmed subject to the reservations indicated above.

No costs are allowed since important public questions are involved.

APPENDIX A

**COMPARISON OF PROMULGATED REGULATIONS
CONCERNING SULFUR DIOXIDE EMISSION
LIMITATIONS FOR THE STATE OF OHIO**

Footnote list:

- a. Source: Ohio Environmental Protection Agency Reg. EP-11-14 (AP-3-14), effective July 17, 1972 (available from Anderson Publishing Co., Cincinnati, Ohio). See Appendix B.
- b. Source: Ohio Environmental Protection Agency Reg. EP-11-13, effective Feb. 1, 1974 (available from Anderson Publishing Co., Cincinnati, Ohio). See Appendix C.
- c. Source: 41 Fed. Reg. 36,324-40 (Aug. 27, 1976); 41 Fed. Reg. 42,455-56 (Nov. 30, 1976); 42 Fed. Reg. 27,588-93 (May 31, 1977).
- d. All figures represent lbs. SO₂ per million British Thermal Units (mBTU) heat input, unless otherwise specified.
- e. Located in Morgan and Washington Counties.
- f. Optional compliance equation omitted from chart.
- g. No present objection to regulation of this facility.
- h. Not regulated.
- i. Excluding sources subject to New Source Performance Standards.
- j. Subject to New Source Performance Standards.
- k. Additional limitations, specified in units other than lbs. SO₂/mBTU heat input, omitted from chart.
- m. Information not available.

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972 ^a	Ohio EPA 1974 ^b	Current US EPA Reg. ^c	Model
Adams(MAX)	Dayton Power & Light, Stuart plant	3.2 ^d	4.8	3.16 3.16 ^f	MAX
Allen(Rural RAM; MAX)	Standard Oil, Lima refinery Claus unit	1.0	1.0	0.13-5.39 ^k 100 lbs. SO ₂ 1000 lbs. S	Rural RAM
	Catalytic cracker/CO boiler			.30 lbs. SO ₂ 1000 lbs. product	
	Trolumen unit			11 lbs. SO ₂ ton production	
	Iso stabilizer, split heaters			0.71	
	Vac I heater			0.21	
	All other units			0.13	
	Standard Oil, Vistron plant ^g			1.27	Rural RAM
	Ohio Power, Woodcock plant ^g			4.38	MAX
Ashland(no sources)		1.6	4.8	h	-
Ashtabula(SCIM)	Cleveland Elec. Illum., Ashtabula plant ^g	1.6	1.0	1.30-9.10	SCIM
	Stacks 1-3			2.40	
	Stack 4			9.10	
	Stack 5			8.20	
Athens(MAX; SCIM)	Columbus & So. Ohio Power, Poston plant	1.6	4.0	3.72-7.50 ⁱ	MAX
	Stacks 1 & 2			3.72 ^f	
	Stack 3			1.20 ^{f,j}	
Auglaize(SCIM)	Goodyear Tire and Rubber ^g	1.0	4.0	4.20 4.20	SCIM

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Belmont(MAX; modified rollback)	Wheeling-Pittsburgh Steel, Martins Ferry Ohio Edison, Burger plant	1.0	1.6	2.60 2.60 h	 rollback
Brown(no sources)		3.2	4.8	h	-
Butler(Rural RAM)	Armco, Hamilton coke plant Armco, Middletown plant Boilers B1-B4 Boilers B7-B10 General Motors, Hamilton Fisher Body	1.6	1.6	0.50-3.43 ^k 0.73 2.11 1.79 1.40	 Rural RAM Rural RAM Rural RAM
Carroll(no sources)		1.0	4.0	h	-
Champaign(no sources)		1.0	4.8	h	-
Clark(MAX)	Ohio Edison, Mad River plant ^g Stacks 1-3 Stacks 4 & 5	1.6	4.8	1.00-4.62 4.62 ^f 1.00	 MAX
Clermont(MAX)	Cincinnati G. & E., Beckjord plant	1.6	4.8	2.02 2.02 ^f	 MAX
Clinton(no sources)		3.2	4.0	h	-
Columbiana(MAX)	Ohio Edison, East Palestine plant ^g	1.0	1.0	4.40 4.40	 MAX
Coshocton(MAX)	Columbus & So. Ohio Elec., Conesville Stacks 1-3 Stack 4	1.0	1.6	5.66 ⁱ 5.66 ^f 1.20 ^j	 MAX

County; Model(s)	Ohio EPA	Ohio EPA	Current US EPA	
employed Petitioner; facility	1972	1974	Reg.	Model
Crawford(MAX)	1.6	4.8	9.60	
Cuyahoga(RAM)	1.0	1.0	0.50-4.60 ^k	
Allied Chemical			4.8 lbs. SO ₂	RAM
Republic Steel			ton of acid	RAM
Oxygen furnace, open hearth,				
blast furnaces,			1.20 ^k	
foundry, etc.			1.24 ^k	
84" slab furnaces			1.00	
Boilers				
Cleveland Elec. Illuminating,				
Lakeshore				RAM
Unit 18			1.30	
Units 91-94			1.90	
Cleveland Elec. Illumination,				
Hamilton Ave.			1.00	RAM
U. S. Steel, Cuyahoga-Lorain				
works			0.50	RAM
U. S. Steel, Cuyahoga works			1.30	RAM
Dupont				RAM
Boiler 18			0.50	
Sulfuric acid units			10 lbs. SO ₂	
			ton of acid	
Standard Oil, Cleveland Asphalt				
plant			0.50	RAM
General Motors, Fisher Body				
plant			2.10	RAM
Darke(no sources)	1.6	4.8	h	-
Defiance(MAX)	1.0	4.0	h	
Delaware(MAX)	3.2	4.8	4.00	
Eric(MAX)	3.2	1.6	1.60 ^k	
Fairfield(MAX)	3.2	4.0	6.90-7.00	

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Payette(no sources)		3.2	4.0	h	-
Franklin(RAM)		3.2	3.2	1.06-4.80 ^k	
	White-Westinghouse			2.20	RAM
	General Motors, Fisher Body plant			1.50	RAM
Fulton(no sources)		1.0	4.8	h	-
Gallia(MAX; SCIM)		3.2	4.8	8.20-9.50	
	Ohio Power, Gavin plant ^g			9.50	MAX
Geauga(MAX)		1.0	4.8	h	
Greene(MAX; Rural RAM; SCIM)		1.6	4.0	0.30-6.20 ^k	
Guernsey(MAX)		1.0	4.8	h	
Hamilton(modified rollback; MAX; SCIM)		1.6	1.6	0.30-5.50 ^k	
	Cincinnati G. & E., Miami Fort plant				MAX
	Stack 2			0.30	
	Stacks 3 & 4			3.30	
	Stack 5			5.50	
	Stack 6			1.20 ^j	
	Dupont, Fort Hill plant			21 lbs. SO ₂ ton of acid	MAX
Hancock(MAX; SCIM)		1.0	3.2	2.50-5.20	
Hardin(MAX)		1.0	4.0	h	
Harrison(no sources)		1.0	4.0	h	-
Henry(MAX)		1.0	1.6	2.10	
Highland(no sources)		3.2	4.0	h	-

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Hocking(no sources)		3.2	3.2	h	-
Holmes(MAX)		1.6	3.2	h	
Huron(MAX)		3.2	4.0	8.00	
Jackson(no sources)		3.2	4.0	h	-
Jefferson(MAX; modified rollback)		1.0	1.0	0.80-8.10 ^k	
	Wheeling-Pittsburgh Steel, Yorkville			4.20	rollback
	Wheeling-Pittsburgh Steel, Steubenville (2 plants) ^g			50 gr. H ₂ S 100 dsaf gas rollback	
	Ohio Edison, Sammis plant			2.91 ^f	MAX
	Ohio Edison, Toronto plant ^g			8.10	MAX
	Ohio Power, Cardinal plant ^g			4.76 ^f	MAX
	Ohio Power, Tidd plant ^g			1.58 ^f	MAX
Knox(MAX)		1.6	3.2	h	
Lake(RAM)		1.0	1.6	0.55-6.00 ^k	
	Cleveland Elec. Illum., East Lake plant			1.43 ^f	RAM
	Republic Steel lime plant ^g			4.21 lbs. SO ₂ ton input	RAM
Lawrence(MAX; Rural RAM)		3.2	1.6	1.22-5.52 ^k	
	Allied Chemical, Semet-Solvay			5.52	Rural RAM
Licking(MAX)		3.2	3.2	1.50	
Logan(no sources)		1.0	4.8	h	-
Lorain(RAM)		1.0	1.6	0.17-3.40 ^k	
	Cleveland Elec. Illum., Avon Lake plant			1.15 ^f	RAM
	Ohio Edison, Edgewater plant			3.40	RAM
	B. F. Goodrich			1.70	RAM

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Lorain(RAM) (cont.)		1.0	1.6	0.17-3.40 ^k	
	General Motors, Fisher Body Elyria plant				RAM
	Boilers 1 & 2			0.80	
	Boiler 4			0.90	
	Other units			1.80	
	U. S. Steel				RAM
	Boilers 1-9			1.20	
	Boilers 10-13			0.50	
	Processes P033 & P039			0.17 ^k	
	All other processes			0.40 ^k	
Lucas(RAM)		1.0	1.0	0.04-4.99 ^k	
	Toledo Edison, Bayshore station			0.50-1.20	RAM
	Toledo Edison, Acme power plant			1.00-3.00	RAM
	Toledo Edison, Water St. steam plant ^g			1.06	RAM
	Standard Oil ^g			0.29-1.00 ^k	RAM
	Coulton Chemical			0.80 ^k	RAM
	Gulf Oil			0.04-0.81 ^k	RAM
	Interlake Steel			0.10 ^k	RAM
	General Motors, Chevrolet plant			1.30	RAM
Madison(MAX)		3.2	4.8	h	
Mahoning(modified rollback)		1.6	1.6	0.50-2.00 ^k	
	Ohio Edison, North Ave. plant			2.00	rollback
	Koppers Co.			2.00	rollback
	Youngstown Sheet & Tube (2 plants)			0.50-0.68 ^k	rollback
	Republic Steel			0.50-0.68 ^k	rollback
Marion(Rural RAM)		1.6	4.0	4.20-6.10	
Medina(MAX)		1.0	4.8	8.00	
Meigs(other modelling strategy)		1.6	4.8	11 lbs. SO ₂ ton input	

County; Model(s) employed	Petitioners; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Mercer(MAX)		1.0	4.0	8.00	
Miami(MAX)		1.6	4.0	3.20-4.78 ^k	
Monroe(no sources)		1.0	1.6	h	-
Montgomery(RAM)		1.6	1.6	0.65-1.60 ^k	
	Dayton P. & L., Tait plant			0.65-1.25	RAM
	Dayton P. & L., Hutchings plant			0.65-1.20 ^f	RAM
	Dayton P. & L., Yankee & Monument			0.65	RAM
Morgan(MAX)		1.6	3.2	6.48	
	Ohio Power, Muskingum R. plant ^g			6.48 ^f	MAX
Morrow(no sources)		1.6	4.8	h	-
Muskingum(MAX)		1.0	4.0	1.14 ^k	
	Ohio Power, Philo plant ^g			1.14 ^f	MAX
Noble(no sources)		1.0	4.8	h	-
Ottawa(MAX)		3.2	4.8	5.90 ^k	
Paulding(MAX)		1.0	4.0	43 lbs. SO ₂ ton input	
Perry(no sources)		3.2	4.8	h	-
Pickaway(MAX)		3.2	1.6	0.85-6.04	
	Columbus & So. Ohio Elec., Picway plant			6.04 ^f	MAX
Pike(MAX)		3.2	4.8	7.00	
Portage(MAX)		1.0	4.8	h	
Preble(MAX)		1.6	4.8	h	

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Cleveland Elec. Illum., et al. v. EPA Nos. 76-2090 etc.

County; Model(s) employed	Petitioners; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Putnam(MAX)		1.0	4.8	h	
Richland(MAX; SCIM)	White-Westinghouse ^g General Motors, Fisher Body ^g	1.6	1.6	3.10-9.30 ^k 4.50 3.10	MAX; SCIM MAX; SCIM
Ross(MAX)		3.2	3.2	4.9 lbs. SO ₂ ton input	
Sandusky(MAX; SCIM)		3.2	4.0	7.00 ^k	
Scioto(MAX)		3.2	4.8	0.60-6.90 ^k	
Seneca(MAX; SCIM)		3.2	3.2	1.20-8.20 ^k	
Shelby(no sources)		1.0	3.2	h	-
Stark(RAM)	Republic Steel, Massillon plant ^g Timken, Gambrinus plant Boilers 1 & 2 Boiler 3 Timken, Canton No. 5 plant Hoover	1.0	4.8	0.47-5.20 ^k 4.40 3.08 0.93 0.67 2.50	RAM RAM RAM RAM
Summit(RAM)	Firestone Tire & Rubber Firestone, Seiberling division B. F. Goodrich Goodyear Tire & Rubber, Plant I Goodyear Tire & Rubber, Plant II Ohio Edison, Beech St. station Ohio Edison, Gorge power plant PPG Industries	1.0	1.0	0.70-6.10 ^k 1.78 1.33 2.71 1.80-3.96 ^k 1.84 ^k 2.71 2.56 1.78	RAM RAM RAM RAM RAM RAM RAM RAM

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Nos. 76-2090 etc. Cleveland Elec. Illum., et al. v. EPA

County; Model(s) employed	Petitioner; facility	Ohio EPA 1972	Ohio EPA 1974	Current US EPA Reg.	Model
Trumbull(MAX; modified rollback)	Republic Steel ^g Ohio Edison, Niles plant ^g U. S. Steel, McDonald mills GM, Packard Electric Warren plants (2)	1.6	1.0	0.50-5.41 ^k 1.00-1.60 ^k 5.41 ^f 0.50 m	rollback MAX rollback rollback
Tuscarawas(MAX)		1.0	1.6	4.60 ^k	
Union(no sources)		3.2	4.0	h	-
Van Wert(MAX)		1.0	4.8	h	
Vinton(MAX)	Austin Powder	3.2	4.0	4.80 4.80	MAX
Warren(MAX)		1.6	4.8	h	
Washington(MAX)	Shell Oil Ohio Power, Muskingum R. plant ^e	1.6	1.6	2.50-6.48 2.50 6.48	MAX MAX
Wayne(MAX; SCIM)		1.6	1.6	7.00	
Williams (MAX)		1.0	4.0	h	
Wood(RAM)		1.0	4.0	1.10	
Wyandot(no sources)		1.6	4.8	h	

APPENDIX B

OHIO EPA 1972 REGULATIONS

EP-11-14 (AP-3-14) Restrictions on emission of sulfur dioxide from the use of fuel.

(B) Emission limitations.

(1) No person shall cause, suffer, allow, or permit the emission of sulfur compounds caused by the combustion of fuel in fuel-burning equipment from any stack or chimney in excess of the quantity set forth in Figure III.

(2) All persons located within air control regions classified as Priority I Regions shall attain or exceed that degree of emission reduction specified by Curve P-1 by the effective date of this regulation.

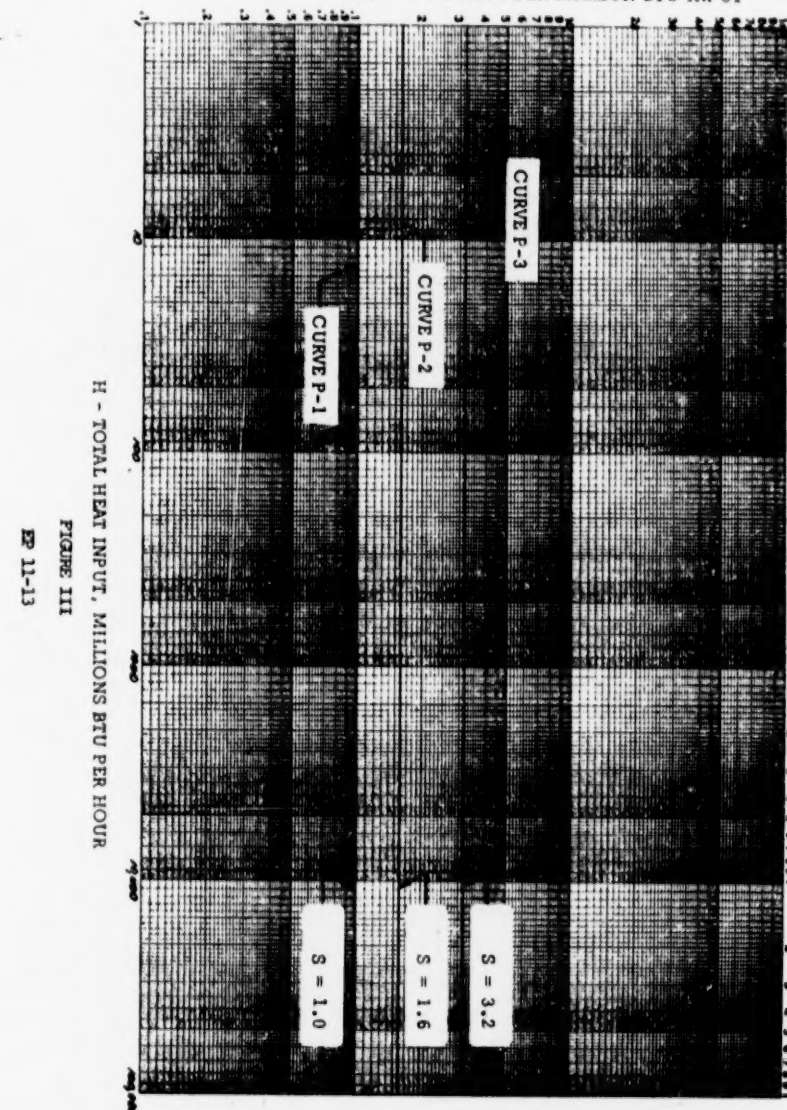
(3) All persons located within air quality control regions classified as Priority II Regions shall attain or exceed that degree of emission reduction specified by Curve P-2 by the effective date of this regulation.

(4) All persons located within air quality control regions classified as Priority III Regions shall attain or exceed that degree of emission reduction specified by Curve P-3 by the effective date of this regulation.

(5) All persons located within air quality control regions classified as Priority II or III Regions shall attain or exceed, no later than July 1, 1975, that degree of emission reduction specified by Curve P-1.

(Adopted July 6, 1972; effective July 17, 1972.)

S - MAXIMUM ALLOWABLE MASS RATE OF EMISSION OF SULFUR COMPOUNDS (AS SULFUR DIOXIDE) - IN POUNDS PER MILLION BTU INPUT



EP-11-06 (AP-3-06) Classification of regions.

CLASSIFICATION BY REGIONS (See Figure IV at end of EP-11)

FEDERAL PRIORITY CLASSIFICATION — BY POLLUTANT —
FEDERAL REGISTER, MAY 31, 1972

AIR QUALITY CONTROL REGION	FEDERAL NUMBER	PARTI- CULATES	SO _x	CO	NO _x	PhtO _x
Cincinnati (Ky.-Ind.)	079	I	II	III	I	I
Cleveland (Akron, Canton, etc.)	174	I	I	III	I	I
Columbus	176	I	III	III	I	I
Dayton	173	I	II	III	I	I
Mansfield-Marion	175	II	II	III	III	III
Marietta (W. Va.)	179	I	II	III	III	III
Northwest Ohio	177	II	I	III	III	III
Portsmouth-Ironton (Ky.-W.Va.)	103	I	III	III	III	III
Sandusky	180	III	III	III	III	III
Steubenville (W. Va.)	181	I	I	III	III	III
Toledo (Michigan)	124	I	I	III	I	I
Wilmington- Chillicothe-Logan	182	III	III	III	III	III
Youngstown	178	I	II	III	III	III
Zanesville	183	II	I A	III	III	III



FIGURE IV

EP 11-06 (AP 3-06)

CLASSIFICATION BY REGIONS

APPENDIX C

OHIO EPA 1974 REGULATIONS

EP-11-13 Restrictions on emission of sulfur dioxide from use of fuel.

(B) Emission limitations.

(1) No person shall cause, permit, or allow the emission of sulfur oxides from any facility as defined in subsection (A) (2) of this regulation in excess of the quantity set forth in Table II (Figure V following EP-11) for the county in which the source is located.

(2) No person shall cause, permit, or allow the emission of sulfur oxides in excess of 1.0 pounds per one million BTU of heat input from any new facility made up of one or more new sources with a combined capacity of 100 million BTU per hour or more for which a Permit to Install or Permit to Construct was not obtained before February 1, 1974. New sources with a combined capacity of less than 100 million BTU per hour shall comply with the emission limitations in paragraph (1) of this subsection.

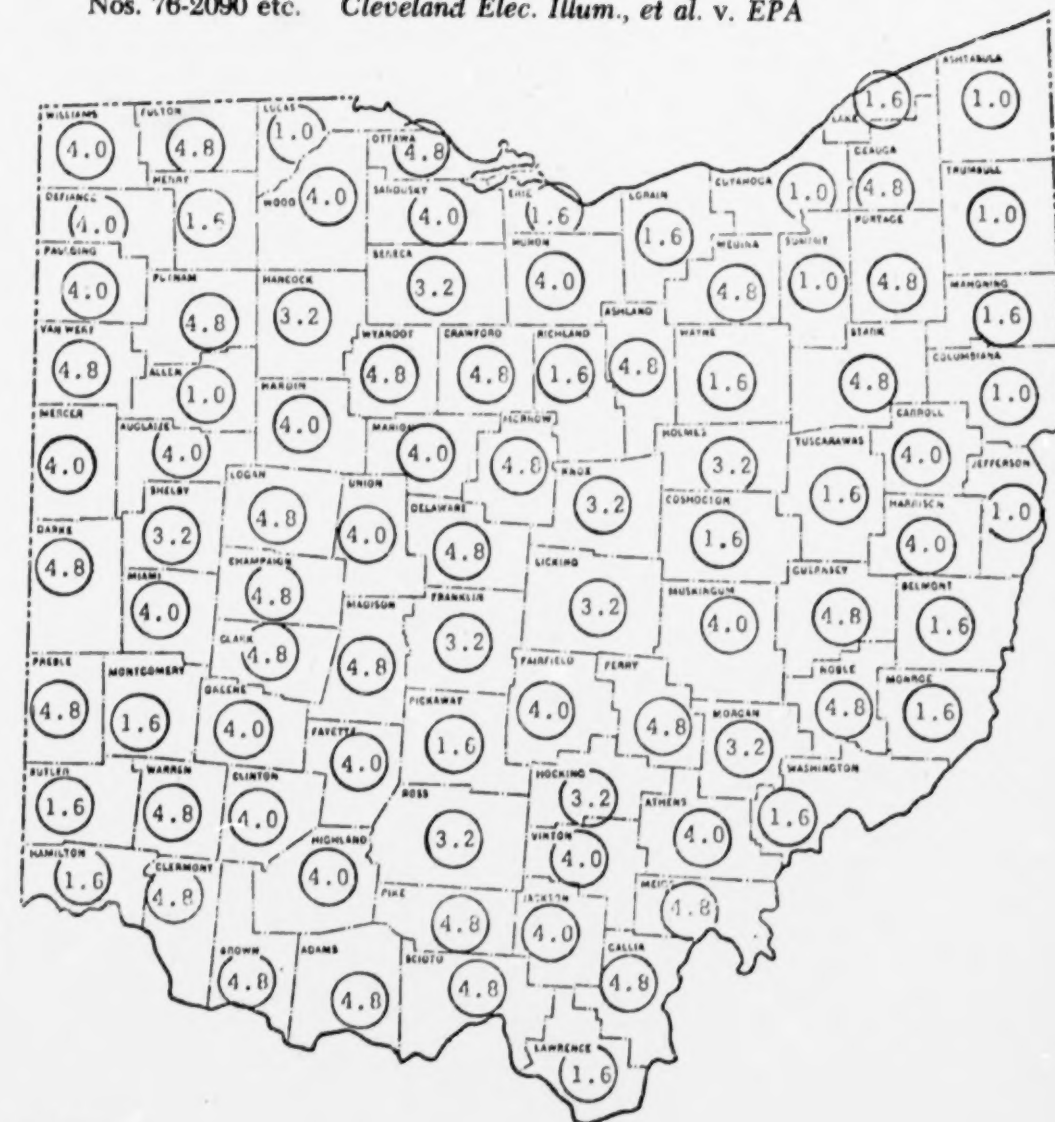
(Adopted January 21, 1974; effective February 1, 1974.)

TABLE II (See Figure V at end of EP-11)

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Allen	1.0 pounds of sulfur dioxide per million BTU of heat input
Ashtabula	
Columbiana	
Cuyahoga	
Jefferson	
Lucas	
Summit	
Trumbull	

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Belmont	1.6 pounds of sulfur dioxide per million BTU of heat input
Butler	
Coshocton	
Erie	
Hamilton	
Henry	
Lake	
Lawrence	
Lorain	
Mahoning	
Monroe	
Montgomery	
Pickaway	
Richland	
Tuscarawas	
Washington	
Wayne	
Franklin	3.2 pounds of sulfur dioxide per million BTU of heat input
Hancock	
Hocking	
Holmes	
Knox	
Licking	
Morgan	
Ross	
Seneca	
Shelby	

COUNTY	SULPHUR DIOXIDE ALLOWABLE EMISSIONS
Athens	4.0 pounds of sulfur dioxide
Auglaize	per million BTU of heat input
Carroll	
Clinton	
Defiance	
Fairfield	
Fayette	
Greene	
Hardin	
Harrison	
Highland	
Huron	
Jackson	
Marion	
Mercer	
Miami	
Muskingum	
Paulding	
Sandusky	
Union	
Vinton	
Williams	
Wood	
All other counties:	4.8 pounds of sulfur dioxide per million BTU of heat input



LEGEND:

- 1.0 = 1.0 pounds of sulfur dioxide
per million BTU of heat input
- 1.6 = 1.6 pounds of sulfur dioxide
per million BTU of heat input
- 3.2 = 3.2 pounds of sulfur dioxide
per million BTU of heat input
- 4.0 = 4.0 pounds of sulfur dioxide
per million BTU of heat input
- 4.8 = 4.8 pounds of sulfur dioxide
per million BTU of heat input

FIGURE V (Table II)

EP 11-13

SULFUR DIOXIDE EMISSION LIMITATIONS

APPENDIX B

50a

APPENDIX B

Judgment

(CAPTION OMITTED IN PRINTING)

Filed February 13, 1978

On petition to review certain regulations promulgated by the Administrator of the Environmental Protection Agency,

These causes came on to be heard on the record of proceedings before the Environmental Protection Agency and were argued by counsel.

Upon consideration, it is now ordered, adjudged and decreed by this Court that the decision of the Administrator in imposing a sulfur dioxide (SO₂) pollution control plan for industrial discharge into the State of Ohio's ambient air is affirmed to the extent related in the Court's opinion filed February 13, 1978. See specifically, footnote 1 therein.

No costs are to be taxed.

ENTERED BY ORDER OF THE COURT

/s/ JOHN P. HEHMAN

John P. Hehman, Clerk

APPENDIX C

51a

APPENDIX C

Order

(CAPTION OMITTED IN PRINTING)

(Filed April 18, 1978)

On receipt and consideration of a petition for rehearing and a suggestion for rehearing en banc concerning an opinion of this Court, filed February 13, 1978; and

No active judge of this Court having moved for rehearing en banc and the motion having been referred to the panel which heard the cases; and

On inspection of said motion, finding therein no argument advanced which had not been carefully considered before issuance of the Court's opinion of February 13, 1978,

Now, therefore, said petition is hereby denied.

Entered by order of the Court

/s/ JOHN P. HEHMAN
John P. Hehman, Clerk

APPENDIX D

APPENDIX D**United States Constitution****AMENDMENT V**

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

5 United States Code § 553**RULE MAKING**

(a) This section applies, according to the provisions thereof, except to the extent that there is involved—

(1) a military or foreign affairs function of the United States; or

(2) a matter relating to agency management or personnel or to public property, loans, grants, benefits, or contracts.

(b) General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law. The notice shall include—

(1) a statement of the time, place, and nature of public rule making proceedings;

(2) reference to the legal authority under which the rule is proposed; and

(3) either the terms or substance of the proposed rule or a description of the subjects and issues involved.

Except when notice or hearing is required by statute, this subsection does not apply—

(A) to interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice; or

(B) when the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

(c) After notice required by this section, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation. After consideration of the relevant matter presented, the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection.

(d) The required publication or service of a substantive rule shall be made not less than 30 days before its effective date, except—

(1) a substantive rule which grants or recognizes an exemption or relieves a restriction;

(2) interpretative rules and statements of policy; or

(3) as otherwise provided by the agency for good cause found and published with the rule.

(e) Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule. Pub.L. 89-554, Sept. 6, 1966, 80 Stat. 383.

42 United States Code § 7410

STATE IMPLEMENTATION PLANS FOR NATIONAL PRIMARY AND SECONDARY AMBIENT AIR QUALITY STANDARDS

Adoption of plan by State; submission to Administrator; content of plan; revision; new sources; indirect source review program; supplemental or intermittent control systems

(a)(1) Each State shall, after reasonable notice and public hearings, adopt and submit to the Administrator, within nine months after the promulgation of a national primary ambient air quality standard (or any revision thereof) under section 7409 of this title for any air pollutant, a plan which provides for implementation, maintenance, and enforcement of such primary standard in each air quality control region (or portion thereof) within such State. In addition, such State shall adopt and submit to the Administrator (either as a part of a plan submitted under the preceding sentence or separately) within nine months after the promulgation of a national ambient air quality secondary standard (or revision thereof), a plan which provides for implementation, maintenance, and enforcement of such secondary standard in each air quality control region (or portion thereof) within such State. Unless a separate public hearing is provided, each State shall consider its plan implementing such secondary standard at the hearing required by the first sentence of this paragraph.

(2) The Administrator shall, within four months after the date required for submission of a plan under para-

graph (1), approve or disapprove such plan or each portion thereof. The Administrator shall approve such plan, or any portion thereof, if he determines that it was adopted after reasonable notice and hearing and that—

(A) except as may be provided in subparagraph (I) (i) in the case of a plan implementing a national primary ambient air quality standard, it provides for the attainment of such primary standard as expeditiously as practicable but (subject to subsection (e) of this section) in no case later than three years from the date of approval of such plan (or any revision thereof to take account of a revised primary standard); and (ii) in the case of a plan implementing a national secondary ambient air quality standard, it specifies a reasonable time at which such secondary standard will be attained;

(B) it includes emission limitations, schedules, and timetables for compliance with such limitations, and such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standard, including, but not limited to, transportation controls, air quality maintenance plans, and preconstruction review of direct source of air pollution as provided in subparagraph (D);

(C) it includes provision for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality and, (ii) upon request, make such data available to the Administrator;

(D) it includes a program to provide for the enforcement of emission limitations and regulation of the modification, construction, and operation of any stationary source, including a permit program as required in parts C and D of this subchapter and a permit or equivalent program for any major emitting facility, within such region as necessary to assure (i) that na-

tional ambient air quality standards are achieved and maintained, and (ii) a procedure, meeting the requirements of paragraph (4), for review (prior to construction or modification) of the location of new sources to which a standard of performance will apply;

(E) it contains adequate provisions (i) prohibiting any stationary sources within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility, and (ii) insuring compliance with the requirements of section 7426 of this title, relating to interstate pollution abatement;

(F) it provides (i) necessary assurances that the State will have adequate personnel, funding, and authority to carry out such implementation plan; (ii) requirements for installation of equipment by owners or operators of stationary sources to monitor emissions from such sources; (iii) for periodic reports on the nature and amounts of such emissions; (iv) that such reports shall be correlated by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection; (v) for authority comparable to that in section 7603 of this title, and adequate contingency plans to implement such authority; and (vi) requirements that the State comply with the requirements respecting State boards under section 7428 of this title;

(G) it provides, to the extent necessary and practicable, for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards;

(H) it provides for revision, after public hearings, of such plan (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of achieving such primary or secondary standard; or (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to him that the plan is substantially inadequate to achieve the national ambient air quality primary or secondary standard which it implements or to otherwise comply with any additional requirements established under the Clean Air Act Amendments of 1977;

(I) it provides that after June 30, 1979, no major stationary source shall be constructed or modified in any nonattainment area (as defined in section 7501(2) of this title) to which such plan applies, if the emissions from such facility will cause or contribute to concentrations of any pollutant for which a national ambient air quality standard is exceeded in such area, unless, as of the time of application for a permit for such construction or modification, such plan meets the requirements of part D of this subchapter (relating to nonattainment areas);

(J) it meets the requirements of section 7421 of this title (relating to consultation), section 7427 of this title (relating to public notification), part C of this subchapter (relating to prevention of significant deterioration of air quality and visibility protection); and

(K) it requires the owner or operator of each major stationary source to pay to the permitting authority as

a condition of any permit required under this chapter a fee sufficient to cover—

(i) the reasonable costs of reviewing and acting upon any application for such a permit, and

(ii) if the owner or operator receives a permit for such source, whether before or after August 7, 1977, the reasonable costs (incurred after August 7, 1977) of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action).

(3)(A) The Administrator shall approve any revision of an implementation plan applicable to an air quality control region if he determines that it meets the requirements of paragraph (2) and has been adopted by the State after reasonable notice and public hearings.

(B) As soon as practicable, the Administrator shall, consistent with the purposes of this chapter and the Energy Supply and Environmental Coordination Act of 1974, review each State's applicable implementation plans and report to the State on whether such plans can be revised in relation to fuel burning stationary sources (or persons supplying fuel to such sources) without interfering with the attainment and maintenance of any national ambient air quality standard within the period permitted in this section. If the Administrator determines that any such plan can be revised, he shall notify the State that a plan revision may be submitted by the State. Any plan revision which is submitted by the State shall, after public notice and opportunity for public hearing be approved by the Administrator if the revision relates only to fuel burning stationary sources (or persons supplying fuel to such sources), and the plan as revised complies with paragraph (2) of this subsection. The Administrator shall approve or disapprove any revision no later than three months after its submission.

(C) Neither the State, in the case of a plan (or portion thereof) approved under this subsection, nor the Administrator in the case of a plan (or portion thereof) promulgated under subsection (c) of this section, shall be required to revise an applicable implementation plan because one or more exemptions under section 7418 of this title (relating to Federal facilities), enforcement orders under section 7413(d) of this title, suspensions under section 7410(f) or (g) of this title (relating to temporary energy or economic authority) or orders under section 7419 of this title (relating to primary nonferrous smelters) have been granted, if such plan would have met the requirements of this section if such exemptions, orders, extension, or variances had been granted.

(D) Any applicable implementation plan for which an attainment date later than December 31, 1982, is provided pursuant to section 7502(a)(2) of this title shall be revised by July 1, 1979, to include the comprehensive measures and requirements referred to in subsection (c)(5)(B) of this section.

(4) The procedure referred to in paragraph (2)(D) for review, prior to construction or modification, of the location of new sources shall (A) provide for adequate authority to prevent the construction or modification of any new source to which a standard of performance under section 7411 of this title will apply at any location which the State determines will prevent the attainment or maintenance within any air quality control region (or portion thereof) within such State of a national ambient air quality primary or secondary standard, and (B) require that prior to commencing construction or modification of any such source, the owner or operator thereof shall submit to such State such information as may be necessary to permit the State to make a determination under clause (A).

(5)(A)(i) Any State may include in a State implementation plan, but the Administrator may not require as a

condition of approval of such plan under this section, any indirect source review program. The Administrator may approve and enforce, as part of an applicable implementation plan, an indirect source review program which the State chooses to adopt and submit as part of its plan.

(ii) Exception as provided in subparagraph (B), no plan promulgated by the Administrator shall include any indirect sources review program for any air quality control region, or portion thereof.

(iii) Any State may revise an applicable implementation plan approved under this subsection to suspend or revoke any such program included in such plan, provided that such plan meets the requirements of this section.

(B) The Administrator shall have the authority to promulgate, implement and enforce regulations under subsection (c) of this section respecting indirect source review programs which apply only to federally assisted highways, airports, and other major federally assisted indirect sources.

(C) For purposes of this paragraph, the term "indirect source means a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution. Such terms includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply (within the meaning of subsection (c)(2)(D)(ii) of this section), including regulation of existing off-street parking but such term does not include new or existing on-street parking. Direct emissions sources or facilities at, within, or associated with, any indirect source shall not be deemed indirect sources for the purpose of this paragraph.

(D) For purposes of this paragraph the term "indirect source review program" means the facility-by-facility review of indirect sources of air pollution, including such measures as are necessary to assure, or assist in assuring,

that a new or modified indirect source will not attract mobile sources of air pollution, the emissions from which would cause or contribute to air pollution concentrations—

(i) exceeding any national primary ambient air quality standard for a mobile source-related air pollutant after the primary standard attainment date, or

(ii) preventing maintenance of any such standard after such date.

(E) For purposes of this paragraph and paragraph (2)(B), the term "transportation control measure" does not include any measure which is an "indirect source review program."

(6) No State plan shall be treated as meeting the requirements of this section unless such plan provides that in the case of any sources which uses a supplemental, or intermittent control system for purposes of meeting the requirements of an order under section 7413(d) or section 7419 of this title (relating to primary nonferrous smelter orders), the owner or operator of such source may not temporarily reduce the pay of any employee by reason of the use of such supplemental or intermittent or other dispersion dependent control system.

Extension of period for submission of plans

(b) The Administrator may, wherever he determines necessary, extend the period for submission of any plan or portion thereof which implements a national secondary ambient air quality standard for a period not to exceed 18 months from the date otherwise required for submission of such plan.

Preparation and publication by Administrator of proposed regulations setting forth implementation plan; transportation regulations study and report; parking surcharge; suspension authority; plan implementation

(c)(1) The Administrator shall, after consideration of any State hearing record, promptly prepare and publish proposed regulations setting forth an implementation plan, or portion thereof, for a State if—

(A) the State fails to submit an implementation plan which meets the requirements of this section,

(B) the plan, or any portion thereof, submitted for such State is determined by the Administrator not to be in accordance with the requirements of this section, or

(C) the State fails, within 60 days after notification by the Administrator or such longer period as he may prescribe, to revise an implementation plan as required pursuant to a provision of its plan referred to in subsection (a)(2)(H) of this section.

If such State held no public hearing associated with respect to such plan (or revision thereof), the Administrator shall provide opportunity for such hearing within such State on any proposed regulation. The Administrator shall, within six months after the date required for submission of such plan (or revision thereof), promulgate any such regulations unless, prior to such promulgation, such State has adopted and submitted a plan (or revision) which the Administrator determines to be in accordance with the requirements of this section. Notwithstanding the preceding sentence, any portion of a plan relating to any measure described in the first sentence of section 7421 of this title (relating to consultation) or the consultation process required under such section 7421 shall not be required to be promulgated before the date eight months after such date required for submission.

(2)(A) The Administrator shall conduct a study and shall submit a report to the Committee on Interstate and Foreign Commerce of the United States House of Representatives and the Committee on Public Works of the United States Senate not later than three months after June 22, 1974, on the necessity of parking surcharge, management of parking supply, and preferential bus/carpool lane regulations as part of the applicable implementation plans required under this section to achieve and maintain national primary ambient air quality standards. The study shall include an assessment of the economic impact of such regulations, consideration of alternative means of reducing total vehicle miles traveled, and an assessment of the impact of such regulations on other Federal and State programs dealing with energy or transportation. In the course of such study, the Administrator shall consult with other Federal officials including, but not limited to, the Secretary of Transportation, the Federal Energy Administrator, and the Chairman of the Council on Environmental Quality.

(B) No parking surcharge regulation may be required by the Administrator under paragraph (1) of this subsection as a part of an applicable implementation plan. All parking surcharge regulations previously required by the Administrator shall be void on June 22, 1974. This subparagraph shall not prevent the Administrator from approving parking surcharges if they are adopted and submitted by a State as part of an applicable implementation plan. The Administrator may not condition approval of any implementation plan submitted by a State on such plan's including a parking surcharge regulation.

(C) The Administrator is authorized to suspend until January 1, 1975, the effective date or applicability of any regulations for the management of parking supply or any requirement that such regulations be a part of an applicable implementation plan approved or promulgated under this section. The exercise of the authority under this subparagraph shall not prevent the Administrator from approving

such regulations if they are adopted and submitted by a State as part of an applicable implementation plan. If the Administrator exercises the authority under this subparagraph, regulations requiring a review or analysis of the impact of proposed parking facilities before construction which take effect on or after January 1, 1975, shall not apply to parking facilities on which construction has been initiated before January 1, 1975.

(D) For purposes of this paragraph—

(i) The term "parking surcharge regulations" means a regulation imposing or requiring the imposition of any tax, surcharge, fee, or other charge on parking spaces, or any other area used for the temporary storage of motor vehicles.

(ii) The term "management of parking supply" shall include any requirement providing that any new facility containing a given number of parking spaces shall receive a permit or other prior approval, issuance of which is to be conditioned on air quality considerations.

(iii) The term "preferential bus/carpool lane" shall include any requirement for the setting aside of one or more lanes of a street or highway on a permanent or temporary basis for the exclusive use of buses or carpool's, or both.

(E) No standard, plan, or requirement, relating to management of parking supply or preferential bus/carpool lanes shall be promulgated after June 22, 1974, by the Administrator pursuant to this section, unless such promulgation has been subjected to at least one public hearing which has been held in the area affected and for which reasonable notice has been given in such area. If substantial changes are made following public hearings, one or more additional hearings shall be held in such area after such notice.

(3) Upon application of the chief executive officer of any general purpose unit of local government, if the Administrator determines that such unit has adequate authority under State or local law, the Administrator may delegate to such unit the authority to implement and enforce within the jurisdiction of such unit any part of a plan promulgated under this subsection. Nothing in this paragraph shall prevent the Administrator from implementing or enforcing any applicable provision of a plan promulgated under this subsection.

(4) In the case of any applicable implementation plan containing measures requiring—

(A) retrofits on other than commercially owned in-use vehicles,

(B) gas rationing which the Administrator finds would have seriously disruptive and widespread economic or social effects, or

(C) the reduction of the supply of on-street parking spaces,

the Governor of the State may, after notice and opportunity for public hearing, temporarily suspend such measures notwithstanding the requirements of this section until January 1, 1979, or the date on which a plan revision under subsection (a)(2)(I) of this section is submitted, whichever is earlier. No such suspension shall be granted unless the State agrees to prepare, adopt, and submit such plan revision as determined by the Administrator.

(5)(A) Any measure in an applicable implementation plan which requires a toll or other charge for the use of a bridge located entirely within one city shall be eliminated from such plan by the Administrator upon application by the Governor of the State, which application shall include a certification by the Governor that he will revise such plan in accordance with subparagraph (B).

(B) In the case of any applicable implementation plan with respect to which a measure has been eliminated under subparagraph (A), such plan shall, not later than one year after August 7, 1977, be revised to include comprehensive measures (including the written evidence required by part D of this subchapter), to:

(i) establish, expand, or improve public transportation measures to meet basic transportation needs, as expeditiously as is practicable; and

(ii) implement transportation control measures necessary to attain and maintain national ambient air quality standards,

and such revised plan shall, for the purpose of implementing such comprehensive public transportation measures, include requirements to use (insofar as is necessary) Federal grants, State or local funds, or any combination of such grants and funds as may be consistent with the terms of the legislation providing such grants and funds. Such measures shall, as a substitute for the tolls or charges eliminated under subparagraph (A), provide for emissions reductions equivalent to the reductions which may reasonably be expected to be achieved through the use of the tolls or charges eliminated.

(C) Any revision of an implementation plan for purposes of meeting the requirements of subparagraph (B) shall be submitted in coordination with any plan revision required under part D of this subchapter.

Applicable implementation plan

(d) For purposes of this chapter, an applicable implementation plan is the implementation plan, or most recent revision thereof, which has been approved under subsection (a) of this section or promulgated under subsection (c) of this section and which implements the requirement of this section.

Extension of time period for attainment of national primary ambient air quality standard in implementation plan; procedure; approval of extension by Administrator

(e)(1) Upon application of a Governor of a State at the time of submission of any plan implementing a national ambient air quality primary standard, the Administrator may (subject to paragraph (2)) extend the three-year period referred to in subsection (a)(2)(A)(i) of this section for not more than two years for an air quality control region if after review of such plan the Administrator determines that—

(A) one or more emission sources (or classes or moving sources) are unable to comply with the requirements of such plan which implement such primary standard because the necessary technology or other alternatives are not available or will not be available soon enough to permit compliance within such three-year period, and

(B) the State has considered and applied as a part of its plan reasonably available alternative means of attaining such primary standard and has justifiably concluded that attainment of such primary standard within the three years cannot be achieved.

(2) The Administrator may grant an extension under paragraph (1) only if he determines that the State plan provides for—

(A) application of the requirements of the plan which implement such primary standard to all emission sources in such region other than the sources (or classes) described in paragraph (1)(A) within the three-year period, and

(B) such interim measures of control of the sources (or classes) described in paragraph (1)(A) as the Ad-

ministrator determines to be reasonable under the circumstances.

National or regional energy emergencies; determination by President

(f)(1) Upon application by the owner or operator of a fuel burning stationary source, and after notice and opportunity for public hearing, the Governor of the State in which such source is located may petition the President to determine that a national or regional energy emergency exists of such severity that—

(A) a temporary suspension of any part of the applicable implementation plan may be necessary, and

(B) other means of responding to the energy emergency may be inadequate.

Such determination shall not be delegable by the President to any other person. If the President determines that a national or regional energy emergency of such severity exists, a temporary emergency suspension of any part of an applicable implementation plan adopted by the State may be issued by the Governor of any State covered by the President's determination under the condition specified in paragraph (2) and may take effect immediately.

(2) A temporary emergency suspension under this subsection shall be issued to a source only if the Governor of such State finds that—

(A) there exists in the vicinity of such source a temporary energy emergency involving high levels of unemployment or loss of necessary energy supplies for residential dwellings; and

(B) such unemployment or loss can be totally or partially alleviated by such emergency suspension.

Not more than one such suspension may be issued for any source on the basis of the same set of circumstances or on the basis of the same emergency.

(3) A temporary emergency suspension issued by a Governor under this subsection shall remain in effect for a maximum of four months or such lesser period as may be specified in a disapproval order of the Administrator, if any. The Administrator may disapprove such suspension if he determines that it does not meet the requirements of paragraph (2).

(4) This subsection shall not apply in the case of a plan provision or requirement promulgated by the Administrator under subsection (c) of this section, but in any such case the President may grant a temporary emergency suspension for a four month period of any such provision or requirement if he makes the determinations and findings specified in paragraphs (1) and (2).

(5) The Governor may include in any temporary emergency suspension issued under this subsection a provision delaying for a period identical to the period of such suspension any compliance schedule (or increment of progress) to which such source is subject under section 7419 of this title, as in effect before August 7, 1977, or section 7413(d) of this title, upon a finding that such source is unable to comply with such schedule (or increment) solely because of the conditions on the basis of which a suspension was issued under this subsection.

Governor's authority to issue temporary emergency suspensions

(g)(1) In the case of any State which has adopted and submitted to the Administrator a proposed plan revision which the State determines—

(A) meets the requirements of this section, and

(B) is necessary (i) to prevent the closing for one year or more of any source of air pollution, and (ii) to prevent substantial increased in unemployment which would result from such closing, and

which the Administrator has not approved or disapproved under this section within the required four month period, the Governor may issue a temporary emergency suspension of the part of the applicable implementation plan for such State which is proposed to be revised with respect to such source. The determination under subparagraph (B) may not be made with respect to a source which would close without regard to whether or not the proposed plan revision is approved.

(2) A temporary emergency suspension issued by a Governor under this subsection shall remain in effect for a maximum of four months or such lesser period as may be specified in a disapproval order of the Administrator. The Administrator may disapprove such suspension if he determines that it does not meet the requirements of this subsection.

(3) The Governor may include in any temporary emergency suspension issued under this subsection a provision delaying for a period identical to the period of such suspension any compliance schedule (or increment of progress) to which such source is subject under section 7419 of this title as in effect before August 7, 1977, or under section 7413(d) of this title upon a finding that such source is unable to comply with such schedule (or increment) solely because of the conditions on the basis of which a suspension was issued under this subsection.

Annual publication of comprehensive document for each State setting forth requirements of applicable implementation plan

(h)(1) Not later than one year after August 7, 1977, and annually thereafter, the Administrator shall assemble and

publish a comprehensive document for each State setting forth all requirements of the applicable implementation plan for such State and shall publish notice in the Federal Register of the availability of such documents. Each such document shall be revised as frequently as practicable but not less often than annually.

(2) The Administrator may promulgate such regulations as may be reasonably necessary to carry out the purpose of this subsection.

Modification of requirements prohibited

(i) Except for a primary nonferrous smelter order under section 7419 of this title, a suspension under subsection (f) or (g) of this section (relating to emergency suspensions), an exemption under section 7418 of this title (relating to certain Federal facilities), an order under section 7413(d) of this title (relating to compliance orders), a plan promulgation under subsection (c) of this section, or a plan revision under subsection (a)(3) of this section, no order, suspension, plan revision, or other action modifying any requirement of an applicable implementation plan may be taken with respect to any stationary source by the State or by the Administrator.

Technological systems of continuous emission reduction or new or modified stationary sources; compliance with performance standards

(j) As a condition for issuance of any permit required under this subchapter, the owner or operator of each new or modified stationary source which is required to obtain such a permit must show to the satisfaction of the permitting authority that the technological system of continuous emission reduction which is to be used will enable such source to comply with the standards of performance which are to apply to such source and that the construction

or modification and operation of such source will be in compliance with all other requirements of this chapter.

July 14, 1955 c. 360, Title I, § 110, as added Dec. 31, 1970, Pub.L. 91-604, § 4(a), 84 Stat. 1680, and amended June 22, 1974, Pub.L. 93-319, § 4, 88 Stat. 256; Aug. 7, 1977, Pub.L. 95-95, Title I, §§ 107, 108, 91 Stat. 691, 693; Nov. 16, 1977, Pub.L. 95-190, § 14(a)(1)-(6), 91 Stat. 1399.